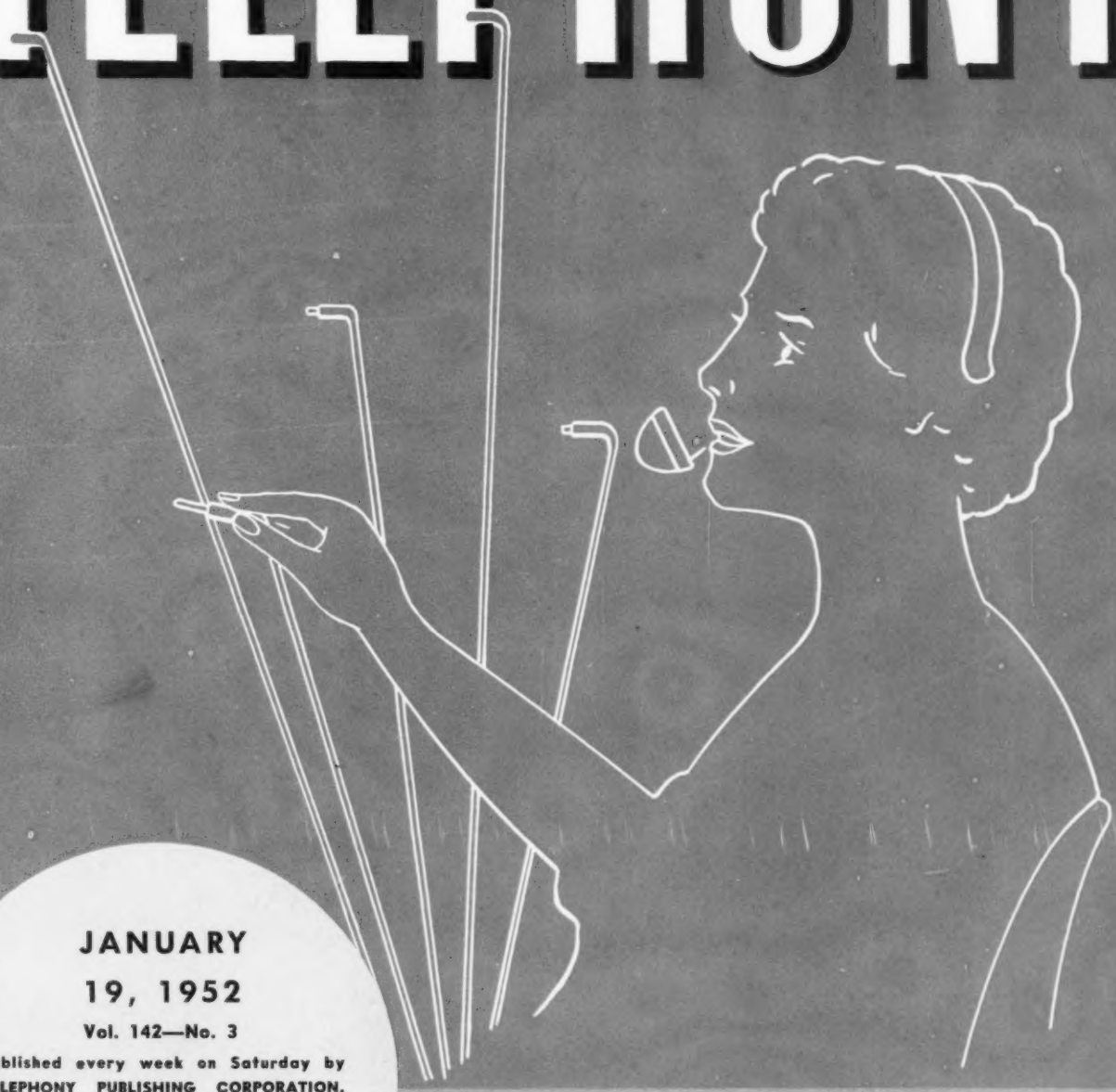
TELEPHONY



JANUARY
19, 1952
Vol. 142—No. 3
Published every week on Saturday by TELEPHONY PUBLISHING CORPORATION, 608 So. Dearborn St., Chicago 5, Ill. Subscription $3.50 per year. Entered as second class matter at the Post Office at Chicago, Ill., under the act of March 3, 1879.

THE JOURNAL OF THE TELEPHONE INDUSTRY

XUM

XUM

4,400 Soldered Connections which are *never* made in a Stromberg-Carlson XY System

Pictured is a wire-bank multiple from just one Stromberg-Carlson XY shelf. Each horizontal divider or "comb" represents one switch position and associated bank of 400 wires or "contacts."

The bare-wire multiple for 12 switch positions or "cells" is shown. Because of the continuous bare-wire bank multiple *only* 400 solder connections are made.

One of many reasons why XY acceptance continues to grow and grow!

STROMBERG-CARLSON

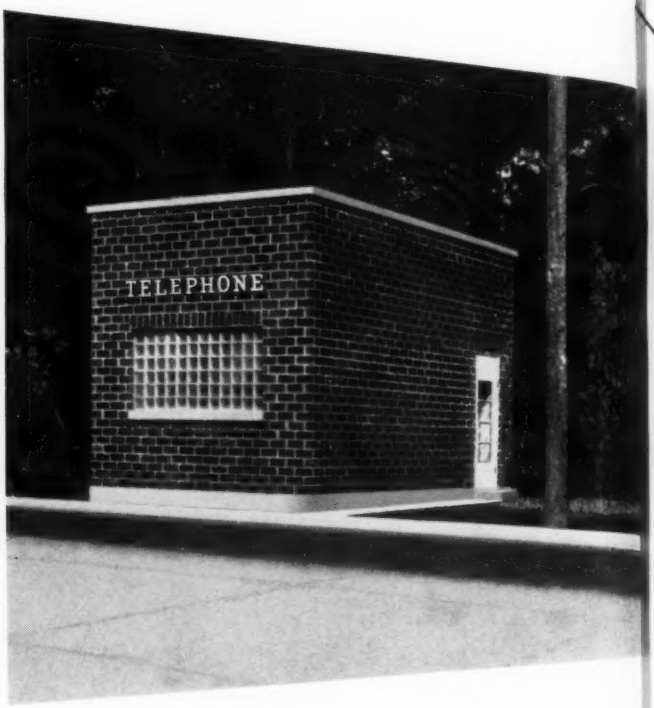
Factory, General Offices: Rochester 3, N. Y. Branch Offices: Atlanta 3, Chicago 6, Kansas City 8, San Francisco 3. In Canada: Stromberg-Carlson Co. Ltd., Toronto

TELEPHONES, SWITCHBOARDS · SOUND EQUIPMENT AND ELECTRONIC CARILLONS · INDUSTRIAL INTERCOMMUNICATION SYSTEMS · TELEVISION, RADIOS AND RADIO-PHONOGRAPHS

XUM

How KELLOGG Crossbar S

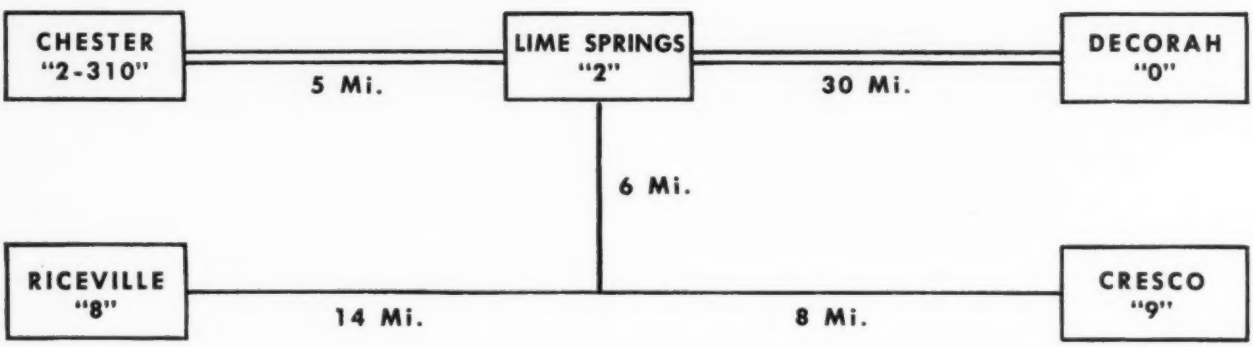
Specifications of LIME SPRINGS IOWA



Furnish This Building with Dial Equipment...

Kellogg dial switching equipment—250 lines ultimate — 175 lines equipped. Furnish with a wire chief's test panel.

To Satisfy This Trunking Plan...



Chester, free service, on Lime Springs subscriber line. Decorah is 2-way CX Bell trunk ckt. Riceville to operate on local line with Cresco as way station. Lime Springs to dial Cresco and Riceville on same line using separate frequencies for signalling. Either Cresco or Riceville operator can dial Lime Springs local numbers direct.

& Solved the Problem of Another Small Exchange

. . . and Provide Features Benefiting the Company and Its Subscribers

REVERTING CALLS are made by dialing the directory number after which the calling party receives a distinguishing audible signal indicating that the hand-set must be replaced long enough to permit the called station to be rung. After an interval sufficient to ring the called line, the calling party again removes the handset from the cradle and the circuit is ready for talking.

100% LINE LOCKOUT equipment is provided for all lines which will automatically disconnect a line from the dial switching equipment within two to four minutes after the line is seized; when a "permanent" line condition is present; when the calling party fails to complete dialing or when the called party fails to answer. The line is automatically reconnected to the dial switching equipment when the cause of the lockout is removed.

CONVERSATION TIMING feature provides automatic disconnect of the called and calling parties and placing them in the lockout position six to eight minutes after the called party answers. An audible warning signal is given both parties approximately one minute before disconnect.

COIN BOX LINES are of the post pay type and are recognized by the operator from a splash of dial tone received at the moment of answering. This tone may be repeated by removing the plug and reinserting it in the jack. The public coin box lines are in the "9000" number series to conform with National toll line dialing practice. This is accomplished by placing the coin box lines on transfer.

NUMBER TRANSFER equipment is provided which will transfer a call directed to a particular subscriber station, from the dialed line to any other line and ring with the same or different frequency. This arrangement permits a subscriber to change service or move to a different location but retain the listed directory number.

ALARM SENDING & CHECKING equipment is provided which will automatically transmit the office alarms over the regular trunks to the operator in Riceville. The call appears to the operator as an abandoned call which is the signal for alarm checking. The operator receives, no tone or busy tone to indicate a major alarm, dial tone to indicate a minor alarm and ringing tone to indicate no alarm.

KELLOGG *Crossbar* *10 to 10,000 Lines*

KELLOGG SWITCHBOARD AND SUPPLY COMPANY •

Dept. 1-A-3, 6650 South Cicero Avenue, Chicago 38, Illinois

XUM

SUPPLIES OF Proven Dependability

● Shipment of guaranteed line supplies made from distribution center nearest you . . . Kellogg's warehouses located in Chicago, Kansas City, Dallas and San Francisco.

The following nationally-known manufacturers of supplies for the independent telephone field are participating in the 1952 Kellogg Co-operative Campaign.

American Creosote Works, Inc.

American Structural Products Co.

Ansonia Electrical Company

Bishop Manufacturing Co.

Boston Woven Hose and Rubber Company

Churchill Cabinet Company

Continental Cross-Arm Co.

Cook Electric Company

Copperweld Steel Company

The Electric Storage Battery Co.

General Insulated Wire Works, Inc.

Gould-National Battery Inc.

W. A. Hammond Drierite Company

Indiana Steel & Wire Company

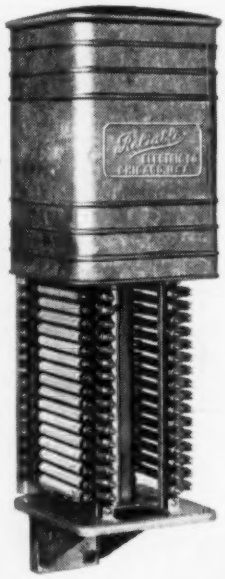
Kester Solder Company

Lorain Products Corporation

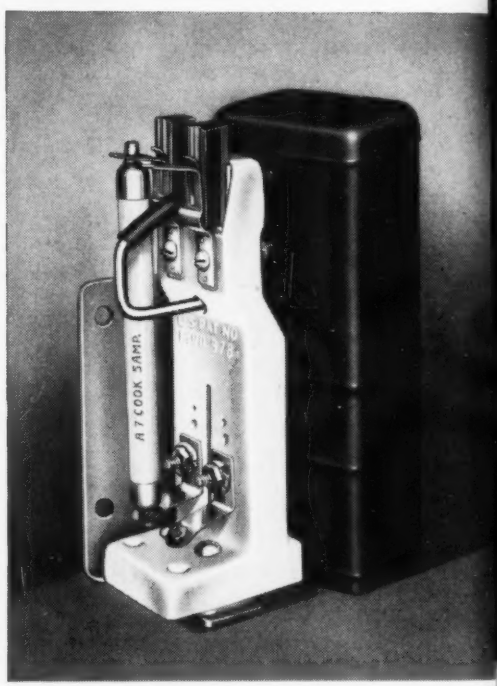
T. J. Moss Tie Company

National Carbon Company
A Division of Union Carbide and Carbon Corporation

National Telephone Supply Co.



Linemen Know the Difference! With RELIABLE ELECTRIC CO.'s B-27 Cable Terminal, all drop connections are made in front . . . easy installation. "Reliable" Sawtooth Discharge Blocks dispel static discharges without unnecessary grounding of the line.



Built to "Take It"! The Cook Type "O" Sub-Station Protector, with grounded Everdur hood fitting tightly to sides and bottoms, is ideal for both indoor and outdoor use. The low-absorption porcelain body of this COOK ELECTRIC COMPANY product prevents surface leakage.

Newman Manufacturing Company

Paragon Electric Company

Raytheon Manufacturing Co.

Ray-O-Vac Company

Reliable Electric Company

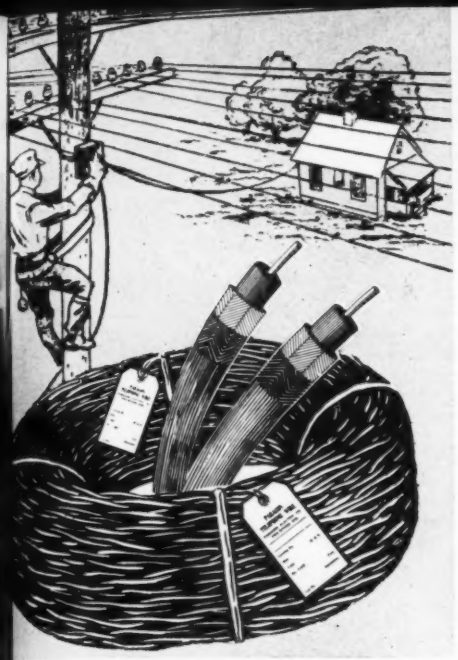
M. M. Rhodes & Sons Company

Schauer Manufacturing Corp.

Taca Cable Stripper Manufacturing Co.

Vulcan Electric Company

Weller Electric Corp.

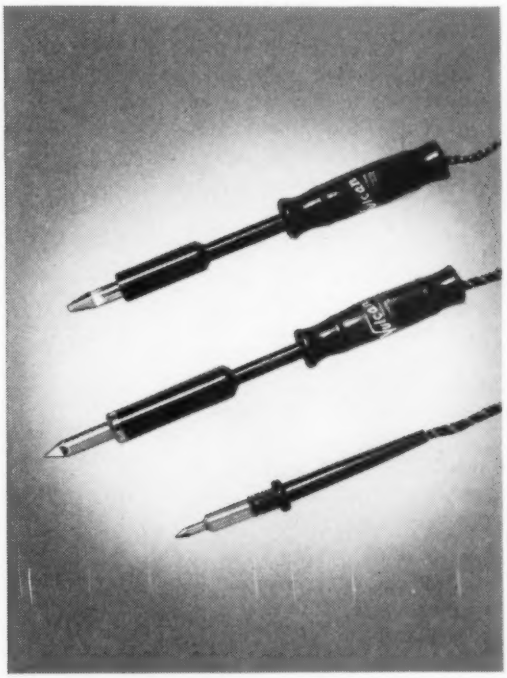


Cut "Trouble Shooting" Expense!—Install PARAGON ELECTRIC COMPANY'S top quality drop wire. Great tensile strength, high conductivity, and perfect adhesion are some of its qualities. This drop wire available in Copperweld or High Tensile BB Bronze.

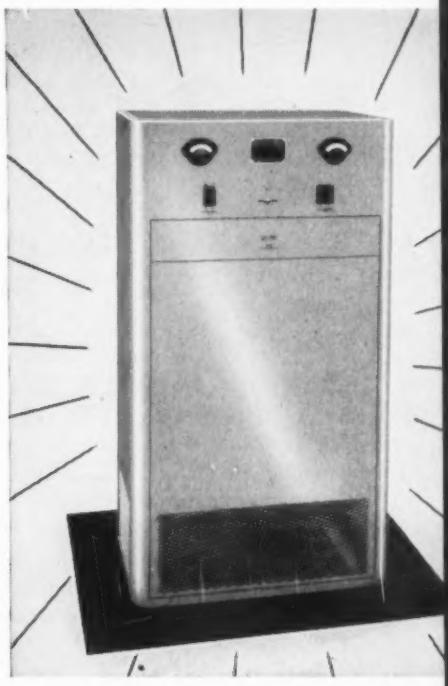
Available Now for use with modern cable spinners, is Crapo Galvanized Steel Lashing Wire. This heavily-galvanized wire is .091" diameter, comes in 325-foot coils. "Stainless Steel" Lashing Wire is also available in .045" and 0.65" diameter. INDIANA STEEL AND WIRE CO.

Outstanding Battery Performance is yours when you choose Gould Planté Batteries. Thick, grooved, pure lead positive plates give many years of trouble-free service! Made by GOULD-NATIONAL BATTERIES, INC., a leader in their field. They're the finest money can buy.

Reliable . . . Economical! "Eveready" "Columbia" "Gray Label" telephone dry cells give you dependability, plus economy thru higher sustained voltage and extra service life. Made by NATIONAL CARBON COMPANY, a Division of Union Carbide and Carbon Corporation.



Neat, Precision Soldering is easy when you use a Vulcan Electric Soldering Iron. These high-powered VULCAN ELECTRIC CO. irons come in various sizes of screw and plug-tip types. Also the "Pygmy"—a pencil type electric soldering tool used for work in cramped spaces.



It Regulates—It Compensates. Flotrol Battery Chargers assure substantial power savings by low standby losses combined with higher overall efficiency. An automatic charger of the floating charge type. All components in one cabinet. Made by LORAIN PRODUCTS CORP.

Send Your Next Order for Supplies to

KELLOGG SWITCHBOARD AND SUPPLY COMPANY

Established 1897

SUPPLIES

WAREHOUSE AND OFFICES: 6000 W. 51st Street, Chicago 38, Illinois

308 W. 6th Street, KANSAS CITY 6, MISSOURI
105 Glass Street, DALLAS 2, TEXAS
1663 Mission Street, SAN FRANCISCO 3, CALIF.

OFFICES:

406 South Main Street, LOS ANGELES 13, CALIF.
720 S. W. Washington St., PORTLAND 5, OREGON
912 Pioneer Building, ST. PAUL 1, MINNESOTA

XUM

FLASHES AND PLUGS

SHOO, THIS IS HUGH. Two more typical tales collected by service representatives from their contact with customers were reported recently in *Alberta Calls*, employe publication of Alberta Government Telephones.

In the first case, it was necessary to change several telephone numbers at Calgary to provide better distribution of business and residence services.

The number of one subscriber, T. Spence Hugh, was changed with that of Spence, Ltd., a shoe store. Hugh complained that "some confusion resulted" since people were calling his number for Spence's Shoes, as the store is often named, and he had trouble convincing them that they had Spence Hugh and not Spence's Shoes.

In another case, the Calgary commercial office recently received a request from a new subscriber to have her number changed from 34267 to 34567, as she thought a "flush" would be luckier. The company told her that, unfortunately, they would be unable to comply, but that she was lucky to get the number assigned under present-day circumstances.

• • •

HE MEANT WELL. The telephones in a Texas county were all party lines, and neighbors listened in for miles. One night during a prolonged dry spell, Old Ed, a shrewd cattle rancher, got a telephone call from a Kansas City buyer who said, "I understand you've got some steers to sell."

"Well, now," dickered Ed, "I'm not sure I want to sell right now—"

"Ed, for heaven's sake," broke in an agonized wail from the party line, "you sell them steers! You know you ain't got any grass!"

• • •

FRANK ANSWER COSTS FRANCS. Two bandits using a 1924 car that had to be cranked by hand robbed a Paris bank of almost $26,000 in January.

Police said the robbers found six persons in a branch of the Credit Lyonnais Bank when they stalked in, brandishing guns. They stuffed 5 million francs ($14,285) into a bag.

As they were about to grab another 4 million francs, a bell went off. The switchboard operator assured them that it was nothing to worry about, only an incoming telephone call. They took the rest of the money.

• • •

A CASE FOR MENTAL TELEPHONY. From the Michigan Bell Telephone Co. magazine comes this tale of the trials of a service assistant's job:

The service assistant answered a call one morning from a woman who said: "I just ran over to my neighbor's to telephone you. I want to tell you my telephone's ringing, but I can't answer it. My husband just took the telephone downtown to your office to get it repaired."

• • •

SWEETEST RECEPTION. Anyone can dial the number 5-2461 in Memphis, Tenn., and get the same answer: "Good morning, John dear," or "good afternoon" depending on the time of day. The number is the office of John Deere Plow Co.

Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY

January 19, 1952

Contents

STOP MONKEYING WITH MEASURING RODS FOR AGRICULTURE CENSUS—*By R. C. Reno* ... 13

IN THE NATION'S CAPITAL—*By Francis X. Welch* 15

DEVELOPMENT OF A COMMERCIAL TELEPHONE ANSWERING AND RECORDING MACHINE ... 17
By H. R. Van Deventer and J. J. Shively

THE PLANT MAN'S NOTEBOOK—*By Ray Blain* .. 24

PLANT MAN'S QUIZ ... 28

COURTS AND COMMISSIONS ... 30

H. D. FARGO, Jr., *President & Advertising Manager*
R. C. RENO, *Vice-President & Editor*
H. D. FARGO, *Vice-President & Treasurer*
A. J. STULTS, *Secretary & Western Manager*
DAN FARGO, *Associate Editor*
HELEN CHRISON, *Associate Editor*
RAY BLAIN, *Technical Editor*
FRANCIS X. WELCH, *Washington Editor*
MAYME WORKMAN, *Traffic Editor*
VIVIAN RYDEN, *Circulation Manager*

Published by
TELEPHONY PUBLISHING CORP.

Vol. 142, No. 3. Published every week on Saturday by TELEPHONY PUBLISHING CORPORATION, 608 South Dearborn St., Chicago (5), Ill. 20 cents per copy (except special issues). Subscription $3.50 per year U. S. and Countries in U. S. Spanish Postal Zone; $4.50 Canada; $5.50 Other Countries. Entered as second class matter at the Post Office at Chicago, Ill., under the Act of March 3, 1879.

Telephone WA bash 2-2435
608 S. Dearborn St., Chicago (5), Ill.
U. S. A.

1. Good tight anti-rattle hooks grip any strand from ¼" to ½" firmly and permanently.

2. Body is 18-gauge steel, heavily L-M-hot-dip galvanized to assure long-lasting protection.

3. Rounded edges add rigidity and safety. No rough edges to cut hands or snag clothes.

4. Long 30-inch cutaway at bottom permits putting the protector over anchor rod and two 6-inch clamps—a unique L-M feature.

5. Bottom clamp conveniently tightened with bolt on the side of protector. Grips any size from ¼" strand to 1" anchor rod. No loose parts to fall out.

L-M guy wire protectors offer extra features for safety and savings. Large size, fully rounded design, and bright L-M galvanizing assure high visibility. Design speeds up the installation. Generous, easily accessible clamping assures a firm grip — it's almost impossible for the protector to rattle or rotate. In 7′ and 8′ lengths.

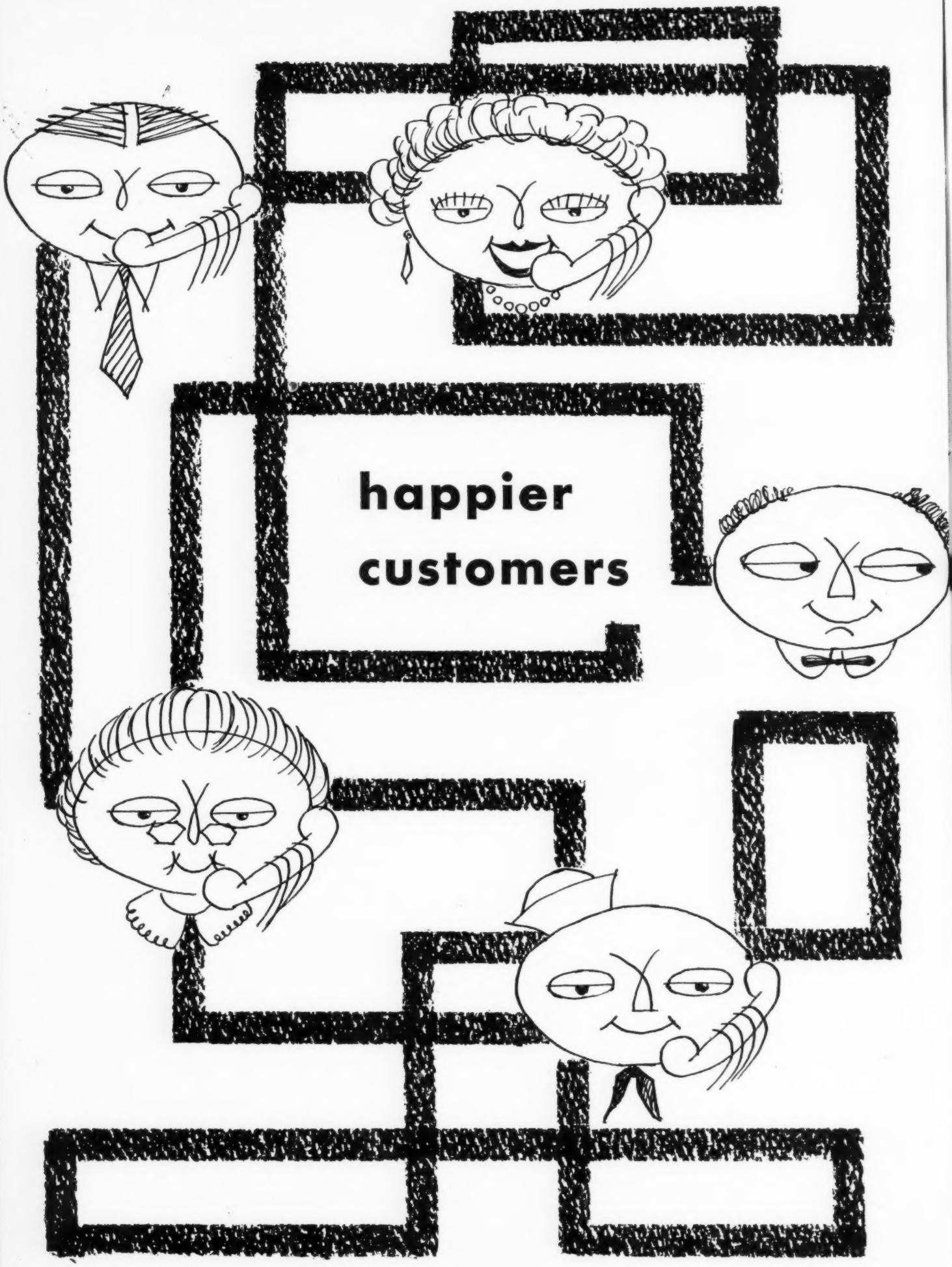
74R

LINE MATERIAL
Line Construction Materials

FOR FULL INFORMATION on these and other L-M Line Construction Materials, ask your Kellogg Man —or write Line Material Company, Milwaukee 1, Wisconsin (a McGraw Electric Company Division).

Sold for L-M to the independent telephone industry by

KELLOGG
SWITCHBOARD AND SUPPLY COMPANY
6650 South Cicero Avenue, Chicago 38, Illinois


happier
customers

Satisfied customers pay their bills.
Satisfied customers bring more of the same.
Satisfied customers produce more
toll business, are certainly better prospects
for increased revenue.

This wonderful Leich 900 magneto telephone
was designed to make your customers
pleased and proud of their telephone service.

Look at it. It's just as compact,
modern and attractive as a regular
common battery or dial telephone.
Crank it. The handy generator crank,
located on top, makes ringing
the operator as easy as dialing.
Talk over it. Never have you
experienced better transmission or reception.

[redacted] make you richer

Give your customers their
choice of wall or desk installation.
It's no trouble for you.
This remarkable Leich 900 magneto telephone
can be used either way
without any changes or additions.

This is the kind of telephone
magneto subscribers can get enthusiastic
about. People you thought would
never *sign up for telephone service*
will see and use this Leich 900
and become paying customers.

Smiling faces will make it more pleasant
and possible to do business . . . profitably.

Please pardon our enthusiasm,
but we know . . . . Leich magneto telephones
are *building goodwill . . . . .*
in **thousands** *of exchanges.*

Write today for catalog and prices.
Leich Sales Corporation,
427 W. Randolph, Chicago 6, Illinois.

LEICH **MANUFACTURERS OF TELEPHONES, SWITCHBOARDS AND RELATED APPARATUS SINCE 1907**

XUM

THERE'S NO OTHER BATTERY LIKE A C&D PlastiCal!

C&D's PlastiCal is *basically* new—the century's greatest battery development! There's no comparison between it and a conventional telephone battery.

As its name suggests, it's a lead-*calcium* battery in a rugged, clear-plastic case. Calcium, unlike antimony, does not "poison" negative plates. Results: only one-fifth as much charging current (and, therefore, less water) is needed to maintain the battery. Thus, positive plates stay strong, and the amazing PlastiCal lasts and lasts—*at least 40% longer* than ordinary batteries! As for the case—it's much lighter, more compact, more durable. And that's not all! C & D's patented, explosion-proof Saftee-Vent, and the *exclusive* PlasTite post seal—the seal that permanently stops "creepage"—make this great battery even greater! PlastiCal comes in a complete range of sizes from 10 A.H. to 660 A.H.

C&D

BATTERIES, INC.

OF CONSHOHOCKEN, PA.

(In the Philadelphia Area)

SALES AND SERVICE

Boston, New York, Philadelphia, Syracuse, Buffalo, Pittsburgh, Washington, Atlanta, Jacksonville, New Orleans, Cleveland, Detroit, Chicago, St. Louis, Minneapolis, Dallas, Denver, San Francisco, Los Angeles, Portland, Seattle.

Why Doesn't the Government

Stop Monkeying with Measuring Rods for Agriculture Census

By R. C. RENO

WANTED: A Practical, Stable Farm Definition. And let's Accentuate the Positive; Eliminate the Negative; and Don't Mess with Mr. In-Between

A LITTLE more than a decade ago, America was singing a silly song which had these opening words—"Accentuate the positive; Eliminate the negative; Don't mess with Mr. In-Between." We still think they are well worth repeating to the Rural Electrification Administration. The reason for this unrequested advice is the slanted job REA did, recently, in analyzing the preliminary figures on farm telephones, from the agriculture census for 1950.

We hesitate to attribute any motive for this apparent case of hand-picking statistics to support a pre-ordained conclusion. We don't say that the idea was to work up support for continuation of the REA rural telephone program. We don't say that REA was conscientiously trying to put the business-managed telephone industry in an unfavorable light. But we do know a hand-picked handout when we see one.

Such was the REA state-by-state analysis of farm telephones, comparing 1920 with 1950 census figures (TELEPHONY, Jan. 5, page 22). We draw your attention in this issue to the table on page 14.

The REA press statement finds that the percentage of American farms with telephones declined .4 of 1 per cent, and a 400,000 decrease in actual farm telephones between 1920 and 1950. It failed to mention that the low point, from which any present day comparison might more logically be made, occurred *after* 1920. Nor did it give the reasons for the precipitate decline during the thirties, nor the real nature of service during the so-called peak in 1920—all of which would have been enlightening and helpful to anyone seeking a clear picture of the situation.

Aside from such omissions, however, there was a fundamental defect in REA's publicized comparison which should at least have been briefly explained in the interest of elementary accuracy. That was the fact that the census bureau's definition of a farm has changed several times during the past three decades. So that strictly speaking, no true statistical comparison is possible unless all the figures used can somehow be adjusted to the standard of one definition or another, but not a combination at the same time!

Without repeating the full text of the definition, suffice it to say here that in 1920 a "farm" was any tract, or combination of tracts, of land farmed by any person, or his family, or help, to raise agricultural produce. The minimum limitations were either three acres in size or (for smaller farms) $250 worth of crops. Tracts separately cultivated by tenants, renters, croppers, or managers were counted as extra farms.

By 1940 the definition was broadened to include additional "farm" operation: Separate tracts farmed by "wage hands," hatcheries, mushroom cellars, apiaries, greenhouses, barn dairies, nurseries.

By 1950 the definition was again broadened so as to include any produce-raising property of three acres, or less if the year's yield amounted to only $150. It is interesting to note that despite this steady liberalization of farm definition, the *total* number of farms has still been declining, according to the census bureau's own count and changing definitions.

This means, in terms of farm telephones, that if the 1950 definition had been used in 1920, there would have been a much greater number of farms, and the so-called "peak" *percentage* of farm telephones would have been much lower. That would have been the only strictly fair comparison. And if that were not statistically possible, the difference certainly should have been explained. In any event, it is difficult to see why REA should have overlooked the more obvious comparison of 1950 census figures with 1940 and 1945—when a low rather than peak point had been reached as a base, and when the definition of "farm" was much more comparable with 1950 than the 1920 definition.

The 1940-1945-1950 comparison shows that, for the nation as a whole, the percentage of farms with telephones increased from 25.04 in 1940, to 31.85 in 1945, to 38.3 in 1950—an over-all increase of more than 13 per cent in 10 years.

REA *might* have gone on to point out that every state showed an increase in farm telephones and percentage from 1940 to 1945. Every state also showed a percentage increase from 1945 to 1950, with only nine states showing loss in actual number of farm telephones. There would, then, be no harm in pointing out that a higher point had been reached way back in 1920, especially if the surrounding circumstances were explained: Changing "farm" definition, the economic depression, collapse of earlier obsolete local mutual telephone systems, etc. But to ignore the whole interim and jump from 1920 to 1950, with accompanying statements about the "loss" of farm telephones between those two periods is, on the face of it, a job of news angling which ought not to come from a government agency.

An even more disturbing factor is the way the REA statement studiously avoids the positive factors and combs through the census figures for negative aspects to emphasize. It was entirely silent about the fact that there was a *gain* in the percentage of farm telephones in 28 states. No, REA preferred to disregard percentages entirely, in order to arrive at the observation that "in 27 states the number of farms with telephones in 1950 was

XUM

lower than in 1920." It might have at least been added that the number of farms *(with or without telephones)* was greater in 1920 than in 1950. But somehow nothing was added about that.

Another interesting angle, in connection with REA's own press release, is the fact that in 1949, during the congressional hearings on the telephone loan amendment to the REA Act, REA testimony estimated that there were 2,473,000 U. S. farms with telephones —or 42.2 per cent of the total farms. This compares with the 2,059,474 farm telephones in 1950 as reported by the Census Bureau.

As TELEPHONY's Washington editor, Francis X. Welch, stated in our Jan. 5 issue, "it is ridiculous to suppose that more than 400,000 farmers took out their telephones during the year from 1949 to 1950." If there were such a statistical decrease, the explanation, as Welch pointed out, must be in such factors as reclassification of farms, annexations of rural areas by cities and towns, subdivision of those areas, etc. It is disappointing enough to note REA's failure to point out these clarifying factors in the interest of all around better understanding, but when REA goes further and draws inferences, which are patently at war with the known realities of the situation, we have the disturbing impression that maybe REA doesn't want a true picture.

The negative effect upon the telephone industry of REA's incomplete farm census press handout is shown by an editorial in the Dallas (Tex.) *Morning News*, which, we assume, was prompted by an REA press story. The editorial, in part, follows:

"The number of farm telephones in Texas declined from 140,234 in 1920 to a low point of 54,564 in 1940 and rose to 79,079 in 1950, according to the United States Bureau of the Census. *The reluctance of big companies to extend service to the rural areas is the primary cause, according to the Rural Electrification Administration. This source states further that the increase in recent years has been effected principally by federal loans to rural companies and cooperatives . . .*" (Italics supplied.)

First of all, this editorial plays up the drop in farm telephones in Texas in the 1920-1950 period. But the facts are that the *percentage* of Texas farms with telephones rose from 13.05 in

(Please turn to page 37)

Farms with Telephones (U.S. Census)

	1920		1940		1945		*1950	
	No.	% of All Farms	No.	% of all Farms	No.	% of all Farms	No.	% of all Farms
UNITED STATES	2,498,493	38.7	1,526,905	25.04	1,866,317	31.85	2,059,474	38.3
Alabama	38,407	15.0	8,254	3.56	11,162	5.00	17,442	8.3
Arizona	1,638	16.4	2,670	14.46	4,661	35.47	4,408	42.3
Arkansas	52,869	22.7	11,375	5.25	13,851	6.97	19,191	10.5
California	37,309	31.7	44,621	33.64	60,421	43.49	78,720	57.4
Colorado	22,022	36.7	16,795	32.65	22,106	46.42	27,048	59.3
Connecticut	11,738	51.8	13,066	61.74	17,225	77.45	13,081	83.8
Delaware	2,763	27.2	2,216	24.64	3,694	39.74	4,990	67.0
Florida	4,524	8.4	3,556	5.71	6,429	10.51	10,192	17.9
Georgia	29,861	9.6	8,473	3.92	13,558	6.00	18,619	9.4
Idaho	13,837	32.9	12,523	28.68	17,421	41.98	22,264	55.3
Illinois	173,572	73.2	105,683	49.51	124,039	60.73	127,618	65.4
Indiana	136,140	66.4	83,675	45.34	97,236	55.26	102,994	61.8
Iowa	183,852	86.1	142,091	66.61	165,760	79.34	166,380	81.9
Kansas	128,753	77.9	79,666	50.96	91,299	64.66	89,760	68.3
Kentucky	73,145	27.0	39,851	15.76	42,118	17.66	45,507	20.8
Louisiana	8,599	6.3	4,991	3.33	6,434	4.98	14,334	11.5
Maine	23,632	49.0	17,105	43.88	22,642	53.67	19,467	64.1
Maryland	11,755	24.5	12,982	30.83	17,137	41.52	19,457	53.8
Massachusetts	16,537	51.7	17,066	53.50	26,295	71.05	17,319	77.9
Michigan	97,874	49.8	52,025	27.73	68,956	39.34	83,134	53.4
Minnesota	110,568	62.0	87,939	44.56	103,176	54.60	107,359	59.9
Mississippi	28,260	10.4	8,215	2.82	9,797	3.72	16,425	6.5
Missouri	163,543	62.2	99,799	38.97	109,055	44.89	106,673	46.4
Montana	9,781	17.0	6,966	16.66	7,847	20.79	9,995	28.5
Nebraska	95,050	76.4	52,349	43.24	63,195	56.55	69,541	64.9
Nevada	1,122	35.5	1,201	33.61	1,608	46.89	1,550	49.8
New Hampshire	10,166	49.5	8,528	51.52	11,795	62.79	10,055	75.1
New Jersey	9,484	31.9	9,359	36.23	13,842	52.78	17,829	71.8
New Mexico	3,359	11.3	2,287	6.71	3,175	10.69	3,500	14.8
New York	91,973	47.6	59,526	38.85	78,484	52.50	88,746	71.0
North Carolina	33,029	12.2	12,111	4.35	14,539	5.06	23,347	8.1
North Dakota	36,349	46.8	20,627	27.89	23,641	34.01	27,214	41.6
Ohio	159,478	62.1	88,888	38.02	111,461	50.53	119,718	60.1
Oklahoma	71,613	37.3	32,571	18.13	41,101	24.94	47,161	33.2
Oregon	25,351	50.5	20,950	33.88	25,643	40.62	30,104	51.3
Pennsylvania	87,887	43.5	54,472	32.23	69,455	40.44	76,511	52.1
Rhode Island	1,685	41.3	1,502	49.83	2,338	64.89	1,998	76.9
South Carolina	10,943	5.7	4,267	3.10	6,306	4.27	11,901	8.5
South Dakota	44,327	59.4	24,821	34.26	31,145	45.33	37,221	56.1
Tennessee	56,880	22.5	32,468	13.11	36,365	15.51	43,541	18.8
Texas	140,234	32.2	54,564	13.05	67,725	17.59	79,079	23.8
Utah	6,295	24.5	4,998	19.67	8,479	32.21	12,515	51.8
Vermont	16,752	57.6	11,052	46.87	14,604	55.13	13,267	69.7
Virginia	33,482	18.0	26,228	15.00	31,835	18.40	35,853	23.7
Washington	27,952	42.2	26,161	32.03	35,502	44.44	40,166	57.5
West Virginia	37,789	43.3	20,308	20.45	21,599	22.13	21,724	26.7
Wisconsin	111,798	59.1	72,436	38.79	86,107	48.44	99,821	59.2
Wyoming	4,449	28.1	3,628	24.16	4,054	31.00	4,735	37.5

*Preliminary Data for April 1, 1950

IN THE NATION'S CAPITAL

BY FRANCIS X. WELCH
WASHINGTON EDITOR

President delivers State of the Union address to a "cold house." . . . Legislators sensitive to "voices back home" about wasteful spending, corruption in government, etc. Bell rate case in Virginia worth watching because of four points of interest: (1) Rate base; (2) rate of return; (3) cut-rate service; (4) tax savings.

LOOKING over the newly gathered 82nd Congress as it listened to President Truman's State of the Union address was a memorable occasion, even to one who has seen the same act often in former years. It was nothing that the President said. For that matter, the Truman speech was definitely not his best, although fairly well presented in his unexciting way. Nor was it the unprecedented presence of the Prime Minister of Great Britain sitting in the balcony, although it must be said that Churchill stole much of the attention throughout the 45-minute performance.

What this writer felt most keenly was an atmosphere of tenseness. A year ago, even though Congress was meeting in the shadow of threatened disaster in Korea, because of the sudden Red Chinese intervention, there was still a certain amount of camaraderie among the congressmen. They entered the House chamber slapping backs and waving greetings to colleagues they had not seen for some time. There was the usual post-election talk. The President was still cocky—almost daring the increased Republican margin to block his programs.

Not so on Jan. 9, 1952. The President seemed tired and, for the first time, on the defensive. Congressmen watched each other suspiciously. Eyes wandered to Sen. Taft, only avowed presidential candidate present, as he fidgeted with his eyeglasses and made notes while the President talked. The applause was more than ever partisan. Hardly a single Republican clapped when the President mentioned his intention of reviving national health insurance, and various other welfare and public project spending.

The President labored under the double handicap of having perhaps the greatest living orator in his audience —Churchill—and what the show people call a "cold house." Southern Democrats sat sullenly, almost as undemonstrative as the Republicans. Nobody was taking any chances of being seen clapping for the wrong political line. If Truman had been delivering the Sermon on the Mount, it would still have been to a "cold house."

The reason, of course, is the advent of a presidential election year. What's more, even though we have grown somewhat callous to the repeated use of the phrase "critical period" by a government in office which has lived from one crisis to another for nearly two decades, few would disagree that 1952 is really likely to prove most critical. Change is in the air. Whether it means political change, or new alignments, or a fear of some new or sudden foreign explosion, there was never a more solemn bunch of congressmen assembled in a joint session that this writer recalls—even in the days following Pearl Harbor.

What does this feeling portend in terms of legislation? By this time, you may have read all the "canned" reaction quotations from different congressmen. But they all ran true to political form and were, therefore, not very enlightening. By way of variety, your correspondent asked a friendly senator, who must remain nameless because he was frank in his reaction. (He also has to run for re-election next fall.)

"What's the matter with this Congress?" I asked. "It looks scared to me. What, in a general way, do you think it is going to do, if anything, at this session?"

"It *is* scared," the senator said. "They've all been home talking to the folks. I think what impresses them most is that people out around the country are good and sore."

"Your constituents, too?" I asked.

"Certainly. I've never seen anything like it. Working people, little people who never used to bother about taxes, are squawking about the waste and corruption in government. I tell you it is going to be a hard year for the 'ins' and I'm 'in.' It's not simply party politics, either. A good many of us are looking for trouble in our own primaries that we never expected."

"How do you account for it? Korea? Scandals?"

"Some of each, I think," the senator said. "But my own private hunch is that the tax bite which went into effect last November is really making them sensitive. Remember, the little people who work for wages have been getting this shock through their withholding tax boost ever since Nov. 1. The businessmen and farmers, who usually do most of the hollering about high taxes haven't even figured theirs out yet. When they do, we're going to have even more of a blast, which will really reach the high point by Mar. 15. But I've found already that the modest wage earner, who never complained before, is complaining already because the tax increase has caught up with him. It hit him not only in his pay envelope but on dozens of excises he had to pay for smokes and drinks and for Christmas shopping. On top of this

Tax Chart Orders

Numerous requests have been received by TELEPHONY for reprints of the Federal Excise Tax Charts published in the Dec. 22, 1951, issue, pages 18 and 19.

It would facilitate the mailing of these charts if, on small orders up to 50 charts, the companies who want them would send stamps or a check to cover the cost of the charts, at 10 cents each, when they send in their orders.

XUM

came the tax collection and influence scandals, and the Korean stalemate. Add them all together and you see what I mean about the folks back home being sore."

"What will be the effect of this on the work of the session?"

"My guess is that it will mean a real effort to economize on non-military spending and some sharp cheese paring even on the armed forces. As for the domestic reform legislation the President mentioned, I think he can just forget it and I think he well knows it. In fact, I look for mighty little domestic legislation of any kind whatever. Unless the foreign situation should get out of hand, I look for Congress to wind up the session in good time for the June conventions."

Bearing out the senator's words was the action taken by President Truman to avoid the issue of Socialism. This was seen in his executive orders placing two of his pet domestic reforms on ice for the rest of the campaign year. He appointed two "study" commissions to take into protective custody the following two Fair Deal targets: (1) The proposed national health insurance plan, which has been under steady fire of the American Medical Association and doctors all over the country who say it would usher in socialized medicine; (2) the proposed Missouri Valley Authority, which would create a TVA extending over an area amounting to one-fifth of the nation.

As the result of this "deep freeze" strategy, both of these vulnerable proposals have been taken out of the forthcoming hot campaign by the simple device of referring them to boards which do not have to report back for another year.

Virginia Rate Case

Telephone rate cases are all too plentiful in these days of inflation when companies are forced to go back repeatedly to regulatory authorities for rate relief. But the case being tried before the Virginia Corporation Commission is worthy of special note because of the variety of issues which have been disclosed. This is the petition by Chesapeake & Potomac Telephone Co. for a $5,066,000 rate increase.

Other telephone cases have involved much larger sums, such as those in New York, Illinois, Michigan, California, and the most recent one filed by Bell Telephone Co. of Pennsylvania for $32,355,600. Other telephone cases have yielded good results for skillful presentation, such as the recent $2,732,000 increase granted by Kentucky Public Service Commission to Southern Bell Telephone & Telegraph Co.—over some high powered opposition which succeeded in cutting down the retroactive authority for a long distance rate increase. And several Independent companies have been engaged in uphill struggles, such as Indiana Associated Telephone Co., which won a $566,000 rate increase for a 6 per cent return, effective New Year's day.

But the Virginia case seems to have a little bit of everything mixed into it, largely as the result of the interest which the federal government is taking in the matter. Among the controversial features developed to date in this case are: (1) The rate base; (2) rate of return; (3) cut-rate service; (4) tax savings.

Off hand, it would seem that an argument about rate base standards in these days would be a pretty stale discussion. But the Bell company's counsel, T. Justin Moore, Richmond, Va., seems to be taking an exceptionally long-headed view of the company's requirements, if the inflationary trends continue, which appears likely. Moore made it clear that the company is persisting in its view that the value of its plant should be computed, for rate-making purposes, on reproduction cost rather than original cost. And while the state commission will probably continue, in this case, to follow the prevailing regulatory judgment—that net original cost is the proper way to set up a rate base—generally rising prices are making strict original cost figures more unrealistic every day. As anybody who has bought or built a house in the past five or 10 years knows, original cost is no longer any measure of present-day value, nor any measure of the cost of the replacement, if a replacement were necessary.

So what the Virginia company's counsel is doing in this case, and what the Bell counsel did in the New York case and several other cases, is to add to a growing body of protest against a theoretical standard of regulatory economics which is growing more impractical as the general price level rises higher and higher. "We intend to keep these reproduction cost figures in (the record) for appeal purposes if that becomes necessary," Moore said.

On the rate of return (which is the profit allowed the company), the Virginia case presented an interesting difference of opinion. The company is seeking a 6 per cent return on reproduction cost which, it is estimated, would amount to 7 per cent on the original cost basis. But Dr. Laurence Knappen, Arlington, Va., expert witness for the Virginia League of Counties, said he thought a 5 per cent return on original cost would be adequate because the "cost of capital" for the company is 4.61 per cent. And James K. McIntosh, appearing for the United States General Services Administration, thought a 5½ per cent return on original cost would be sufficient. The federal government is in this case because it is the company's largest single subscriber. (The government's annual telephone bill from this company alone was estimated at more than 4 million dollars.)

The cut-rate service question is something peculiar to Virginia because of a state constitutional provision which permits members of the state regulatory commission to get free utility service, including telephone service. While the company had no choice except to extend such free service under the Virginia law, an issue was made of it, resulting in company testimony that about 10,000 persons and organizations in Virginia are receiving cut-rate service.

These include practices, extending back over many years, of making discounts for clergymen, telephone company employes and charitable institutions. It was brought out that approximately 8,000 employes were

(Please turn to page 38)

Labor Continues Shift to Free Enterprise

The International Brotherhood of Electrical Workers (IBEW) is definitely shifting towards private enterprise on the question of expanding public ownership in the electric power industry.

According to a signed article in the *New York Times*, recently, IBEW Vice President Frank W. Jacobs was reported to have repudiated the union's former support of a public power program, declaring that it had gone far beyond plans of its initial sponsors. Jacobs said that the program of public power "has been extended step by step to the point of peril to legitimate free enterprise and free labor." He added that IBEW had learned, "through bitter experience," that labor's rights are not protected by public power slogans.

Recently the Chicago Federation of Labor, comprising some 500 local unions with a membership of 550,000, repealed one of its constitutional provisions advocating public ownership and operation of power, gas, water, telephone, and local transport facilities. The federation president said it is for "free enterprise from top to bottom."

Development of a Commercial Telephone Answering and Recording Machine

By

H. R. VAN DEVENTER

and

JOHN J. SHIVELY

A FRUITFUL source of information to indicate the development of any device is the United States Patent Office. Here will be found patents which illustrate the progress made. Often these patents show that the device was devised before there was any market for it. Many patents will disclose impractical and often commercially inoperative devices. Anyone starting in a new field will do well to fully inform himself as to what *has already been done*, as shown by issued patents.

It is beyond the scope of this discussion to analyze the art in this field prior to 1937. Suffice to say that out of the many U.S. patents then extant, none had apparently resulted in a telephone answering and recording device that had ever reached the U.S. market.

Study of this field, beginning in 1937, clearly indicated that any device to be acceptable to operating telephone companies must meet the following conditions:

(1) No changes whatever in existing telephone equipment, either at the subscriber's telephone or central office. Must operate with any type of telephone instrument.

(2) The device, if out of order, must not disable the telephone service.

(3) No change in operating procedure, the device to merely answer the call and, after delivering its talk-out message, record any message the calling party wished to leave.

(4) The device must be self-contained, operate from 110-volt, 60-cycle lighting circuit, and meet all Underwriters' requirements and safety regulations.

(5) The talk-out message must be delivered at a volume level to be clearly heard under ordinary operating conditions, and the recording must be at such a level that even the weakest recording can be played back and clearly heard.

(6) The controls and play-back operation must be so simple as to be performed by anyone who can change a record on an ordinary phonograph. Any type of record that can break in service is not acceptable.

(7) The cost of the device must be such that operating telephone companies can install it on a monthly rental basis at a profit.

(8) The device must be designed to be installed anywhere by the telephone company and require a minimum of service. It should not be designed to be sold to the public, as such attachments to the telephone lines are prohibited by law in most states, and all installation and servicing should be done by the telephone company as the device becomes an integral part of the telephone system.

While these eight requirements could be met, it soon developed that there were others equally important, which appeared as the result of field experience. Reference to some of these requirements will be made later.

The first instrument, hereinafter termed the Peatrophone and developed after extensive field tests, was exhibited at the 1940 convention of the United States Independent Telephone Association and a schematic drawing is shown in *Fig. 1*. It was known as Model A and a description of it appeared in the Oct. 12, 1940 issue of TELEPHONY. This model was acoustically coupled to the telephone instrument, as shown in *Fig. 2*, by placing the telephone handset H in two cups so that the telephone transmitter faced a receiver and the telephone receiver faced a transmitter. The result was that the telephone receiver "talked" to the transmitter in the device which operated the recorder, and the receiver in the device "talked" to the telephone transmitter and to the calling party, thus providing complete coupling between the device and the telephone instrument and line connected thereto.

Against the bell box of the telephone was placed a pick-up device responsive to the mechanical vibrations of the bell, so that when the bell rang, a circuit in the device was opened (or closed) to operate a relay. This relay operated a lever L that normally held the telephone hook switch down. When this lever was raised by the mechanism in the device, the telephone instrument was connected, as usual, to the line. This took care of the supervisory signal on common battery lines but, of course, put both pieces of apparatus (the telephone instrument physically and the Peatrophone acoustically) across the line, with a consequent transmission loss.

The device now went through its cycle, first delivering a message recorded by the subscriber and left in the machine; then a signal was given the

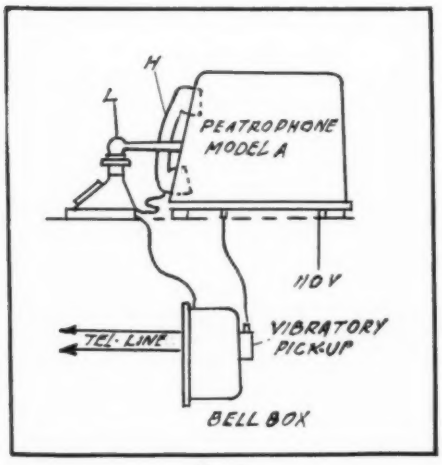


Fig. 1

Fig. 2

XUM

calling party to start talking if he wanted to leave a message. He could speak until he heard another signal, whereupon the machine would stop, the lever L coming down on the telephone hook switch, and the machine was ready for the next call.

Experience soon proved that improvements could be made in the Model A machine. The acoustic coupling permitted Model A to pick up considerable local noise in the room where the instrument was located. Also, such a coupling being inefficient for incoming and outgoing speech, it was necessary to use a degree of amplification that caused distortion and proved unsatisfactory on short lines where the telephone transmission was at maximum. In other words, if Model A was made sensitive enough to record properly from a line with poor transmission, it was too loud and sensitive on short lines. This fault is inherent in the acoustic type of coupling and cannot be overcome except by complicated and expensive electronic volume control, which is difficult to maintain and service.

The second objection was the ringing signal pick-up. While this obviated the necessity of making any wire connection to the telephone line, it necessitated (on many lines) such a very delicate adjustment of the vibratory device on the telephone bell box that it would operate by any sudden jar in the building or by "strays" on the telephone line such as cause bell tapping.

Electronic pick-ups were devised to eliminate these objections, but proved complicated, expensive and difficult to maintain. In many instances, the telephone set had no bell box, the bell being in the base of the handset cradle. Here it was necessary always to set the telephone in a proper position on a support containing the pick-up. The subscriber often neglected to do this, whereupon the Model A would fail to start.

The third objection, and the most serious one to Model A, was the employment of the lever or arm L *(Fig. 1)* to operate the telephone hook switch. This was operated in various ways. As shown in *Fig. 1*, the arm normally rested on the telephone hook switch instead of the handset and was raised therefrom while the Peatrophone was in operation. The first trouble encountered was that subscribers would not place the telephone instrument properly in relation to the arm. Often they would forget even to place it in front of Model A, but would set it somewhere else and have a receiver-off-hook condition as soon as they left the instrument.

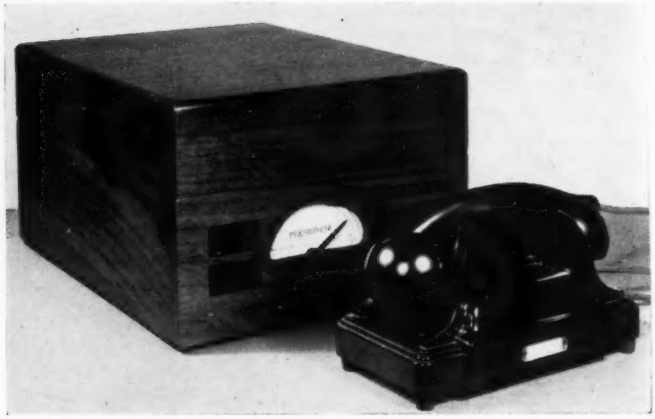


Fig. 4

Another trouble was that Model A could not be used with *all* telephone instruments — wall sets and old type desk stands, and many other types— thousands of which are still in use. Where the subscriber kept his telephone on the front corner of his desk, he had to place Model A there also, and this did not work out in practice. Subscribers could not become adjusted to this requirement. It soon became evident that any device having the arm, and which required the telephone instrument to be closely associated therewith, was impractical and not acceptable to operating companies and the public.

Model A was superseded early in 1941 by Type A-1, which—instead of being acoustically coupled to the telephone line — was inductively coupled thereto as shown in the drawing *Fig. 3*. The pick-up for the incoming ringing signal was operated through the pick-up coil C as well as the voice currents. Instead of placing coil C on the bell box, it was in some instances—where the ringer and induction coil were in the base of the telephone instrument—placed underneath the base of the telephone. When the ringing pulse appeared in coil C it operated a relay in the device, which operated lever L to raise the hand-set and put the telephone instrument across the line.

It was found that, to get satisfactory

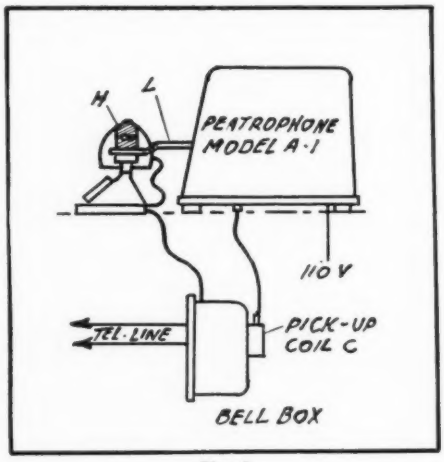


Fig. 3

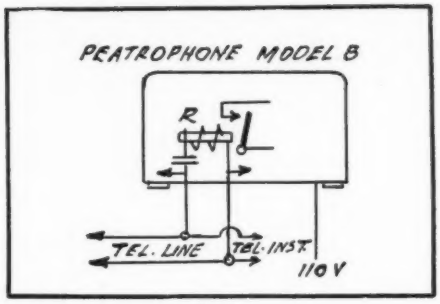


Fig. 5

operation of the signal pick-up, the amplification and sensitivity necessary was excessive, and the device was, therefore, sensitive to "strays"; i.e., a single pulse in the telephone line would start the device. A time-delay was introduced in the ringing circuit which did fairly well on machine ringing but proved objectionable for many reasons on manual ringing and PBX work.

In order to get supervision, it was still necessary to operate the telephone hook switch, and this was accomplished by the lift arm L *(Fig. 3)* which raised the handset H sufficiently to operate the switch hook without completely lifting it from the cradle. This arrangement proved to have all of the troubles mentioned with the arm in Model A, and a few others which need not be mentioned here.

The speech coupling in Model A-1 did not eliminate outside noise being picked up as the telephone transmission circuit was alive — the handset being off the hook. High amplification was necessary and—as the device had a variable terminal impedance depending upon the location of coil C relative to the telephone instrument (which depended on many factors beyond control and how the subscriber placed the telephone instrument on the device)—the results were highly variable and the device was unsuitable for universal service, especially on long distance calls. The high amplification necessary often caused cross-talk where small gauge cable was used, and, like Model A, a microphone had to be incorporated in the device for recording the talk-out

pick the brush Killer that's proved for the job!

When you pick a product for brush control, you can't afford to test 50 or more formulations to determine which one is best for the job. *But we did*—in cooperation with public utility companies, highway departments, railroads and spray service organizations. These tests on many species of brush in all sections of the country at all seasons of the year *proved* that Esteron* Brush Killer and Esteron 245 should be your first consideration in any successful brush control program. Here's why:

Both contain highly effective low volatility propylene glycol butyl ether esters which have been proved by actual use over thousands of miles of right-of-ways. Esteron Brush Killer, a mixture of the 2,4-D and 2,4,5-T esters, is widely used for control of mixed stands of brush. For certain resistant species that need a straight dose of 2,4,5-T—Esteron 245 is the ticket! It is successful also for year-around basal bark and stump treatment.

Both products have excellent storage qualities.

Yes, good results depend on the brush killer you use and how you use it. Pick the one that's *proved* for the job! You are invited to call on Dow sales and technical men for consultation on your brush control problems.

*ESTERON is a registered trade mark of The Dow Chemical Company, largest producers of weed, brush and grass control chemicals.

ESTERON BRUSH KILLER and ESTERON 245

CONTAINING NEW LOW-VOLATILITY ESTERS

THE DOW CHEMICAL COMPANY

Agricultural Chemical Department • Midland, Michigan

New York • Boston • Philadelphia • Atlanta • Cleveland • Detroit • Chicago
St. Louis • Houston • San Francisco • Los Angeles • Seattle
Dow Chemical of Canada, Limited, Toronto, Canada

DOW

CHEMICALS

INDISPENSABLE TO INDUSTRY AND AGRICULTURE

XUM

message and a receiver for play-back.

The types A, A-1 and B (the latter to be presently described) were exhibited at the USITA convention in October, 1941, and it was at once apparent that the new Model B was the only type so far developed that met the requirements of the telephone industry.

Type B Peatrophone *(Fig. 4)* was the first commercial model to be directly metallically connected to the telephone lines, as shown in drawing, *Fig. 5*. Here the ringing relay R may have the same high impedance and other characteristics as a telephone ringer, and may have the same operating characteristics. This eliminated all starting difficulties inherent in operation through a coil such as C *(Fig. 3)* or the vibratory pick-up described in connection with Model A *(Fig. 1)*.

In Model B, the telephone instrument merely connected to the device via the usual cord, and could be placed anywhere, as it was not necessary to have it in reach of an arm or to set it down in a certain place — necessary with the acoustic and electronically coupled Models A and A-1. In fact, the telephone could be in one room and Model B in another. Model B could not pick up any room noise.

Model B contained a microphone for recording the talk-out message and a small loudspeaker for play-back. It had definite terminal impedance—the same as a telephone instrument—and gave satisfactory recording and reproduction under the varying line and other conditions met with in actual service. But it, too, could be improved.

It was soon determined that the average user did not know how to use a microphone and had trouble in making a good talk-out record. The loudspeaker play-back was also objectionable. This was cured by using a head receiver, but the public never put *that* back where it belonged after using it —and it was bothersome. However, Model B was generally satisfactory and required a minimum of servicing.

It was established from this experience that a Peatrophone should not require any more service than the average telephone instrument and it was determined that the amplifier tubes operating at the light load given them would apparently last for years. A lot was learned about the subscriber's habits in making the talk-out record and playing-back messages, and the necessity for simple controls that could not be mishandled to tie up the line or the device was determined.

During the war years, little could be done except field testing and some further development embodying tape and wire recorders; and it was not

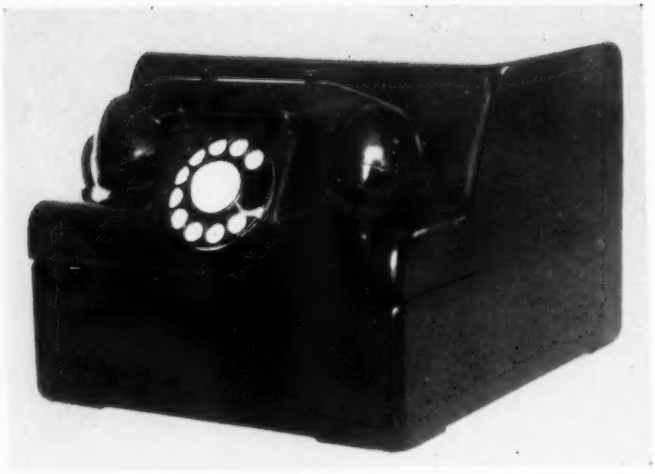


Fig. 6

until 1947 that Model 50 appeared, as shown in *Fig. 6*. Here the idea was to combine the telephone instrument with the Peatrophone in one cabinet. This looked like a fine idea until it got into the field, whereupon operating companies objected to it because whenever they installed a Peatrophone they had to take out the existing telephone, which became second-hand, and this they would not do. This model, therefore, while it gave satisfactory operation, did not meet commercial requirements and only a few of them were made.

Model 50, however, led to several important developments in succeeding models. The first of these was the discarding of the microphone and receiver for recording and play-back, and the use of the transmitter and receiver *of the telephone handset* for these purposes. While this seems to be a small matter, it is of the greatest importance. Everyone is accustomed to using the telephone handset and will automatically position the transmitter in the proper position for recording, whereas with the separate microphone the user would often hold it at arms-length with a resultant bad recording.

Also, the user properly positions the *receiver* when using the handset. Also, all additional cords and switches are

Fig. 7

A Selected List of Telephone Books

• ***How to Build and Repair a Farm Telephone Line*, published by Telephony Publishing Corp.**

Eight-page booklet, unbound, 25 cents per copy to non-subscribers of TELEPHONY; special prices available to subscribers and to anyone ordering 25 or more booklets. This booklet, well-illustrated with photographs and diagrams, tells what was done to place a run-down farm line in good condition to furnish excellent service. The text describes how to attach wire to an insulator, how to attach brackets, how to set a pole, how to string wire, how to make a splice, how to protect telephone line from power line hum, how tree branches touching wires hamper transmission, how to connect drop wire to line wire, how to attach drop wire to house, how to connect house line to telephone, and how to connect the ground rod. The materials needed for a farm line are also listed.

• ***Rural Telephone Trouble*, published by Telephony Publishing Corp.**

Four-page reprint of an article published in TELEPHONY giving 33 magneto telephone and line troubles most commonly encountered, with suggestions as to the most likely cause of each —whether in the telephone set, the protector, the line, or the central office. Cost is 25 cents per copy to non-subscribers of TELEPHONY; special prices available to subscribers and to anyone ordering 25 or more reprints.

• ***ABC of the Telephone*, published by Telephony Publishing Corp.**

Vol. I. 84 pages—8½ ins. x 11 ins. Prices: One copy, $1.50; two to 25 copies, $1.35 each; 26 to 50 copies, $1.20 each; 50 or more copies, each.....$1.05

Reprint of first 21 installments of article by Frank E. Lee running currently in TELEPHONY. Covers fundamental information concerning electrical circuits, telephone transmitters and receivers, induction coils, generators, ringers, relays, line protection, dials, automatic switching, drop wire installation. Particularly beneficial to beginners.

Vol. II. 78 pages. Prices same as for Vol. I.

Covers sub-station protector installation, station wire installation, subscriber station installation, fault locating, relay circuits, planned maintenance program, electronic testing of cable and drop wire, crosstalk and transmission developments, attenuation and loading coil theory.

• ***Handbook for Telephone Managers and Engineers*— (In Two Volumes). Published by Automatic Electric Co., 1033 W. Van Buren St., Chicago, Ill. (illustrated)**

Vol. I (294 pages).....$3.00

Deals primarily with design, construction and maintenance of outside plant and also includes introductory sections containing mathematical and engineering data, formulae, tables and other material of a general nature.

Vol. II (732 pages).....$3.00

Deals with telephone transmission data; subscribers' instruments; central office equipment; testing equipment and methods; protection, inductive interference, crosstalk; voice frequency repeaters; carrier telephone and telegraph systems; toll systems and radio-telephone systems.

• ***Telephone Handbook of Standard Outside Plant Construction Methods—Book No. I.* Published by Kellogg Switchboard & Supply Co., 6650 S. Cicero Ave., Chicago, Ill. 365 pages (illustrated).....$3.50**

Covers standard outside plant construction practices, pertaining to pole line and long span construction. Seven sections are subdivided into more than 100 parts. Subjects are cross-indexed.

• ***Fundamentals of Telephony*, by Arthur L. Albert (1943) 366 pages $5.00**

This elementary book, intended for beginning students and for telephone workers, is devoted exclusively to telephone communication. The first four chapters present briefly the principles of electricity and acoustics upon which telephone practices are based. The book then considers the following subjects: Telephone transmitters, receivers, telephone sets and circuits, telephone lines, manual telephone systems, dial telephone systems, loading, telephone measurements, noise and cross-talk, and repeaters and carriers.

• ***Electrical Fundamentals of Communication*, by Arthur L. Albert (1942); 554 pages.....$6.50**

This book deals with fundamentals of electricity as applied to communication, including telegraphy, telephony, and radio. Contains basic electric circuits and phenomena using illustrations, terminology and problems from communication industry standpoint. Contains tables and 359 excellent drawings; is non-mathematical and clearly written for communication people having little or no college training. Especially suited for use in telephone training courses for new employes. Also valuable for employes who wish to extend their knowledge of electricity. A summary as well as review questions and problems given at end of each chapter.

• ***Tree Clearance for Overhead Lines*, by George D. Blair, (second edition); 244 pages fully illustrated....$4.75**

The book is arranged in 13 chapters which provide all of the necessary information to those concerned with tree clearance problems. These include basic arboricultural information, economic factors involved, field programs, laws, regulations, types of structures encountered and how they are affected by nearby trees together with enough information to constitute a short course in the care of shade trees. All of this information is written from a utility point of view and arranged so as to be of the greatest value to utility employes.

• ***Electrical Communications*, by Arthur L. Albert (1950); 581 pages (third edition).....$6.50**

Presentation of electrical theory of communication, including vacuum tubes, networks, filters, and discussion of entire industry. Various subjects considered as related to one another in modern communication systems. Designed as a college textbook and reference book for those having technical training. Others will find much of value in it, as use of mathematics has been limited but not at a sacrifice of engineering exactness.

• ***Automatic Telephone Practice*, by Harry E. Hershey (1949); 241 pages (sixth edition).....$6.00**

Generously illustrated, well-organized, this book is a complete reference work covering Strowger equipment. Five sections are devoted to automatic equipment: (1) Detailed explanation of equipment without reference to circuits; (2) historical background of systems; (3) fundamental elements appearing in all telephone and non-telephone circuits; (4) detailed study of typical modern circuits with each circuit analyzed contact by contact; (5) standard adjustments covering switches and relays.

• ***Anatomy of Depreciation*, by Luther R. Nash (1947) $5.00**

Discussion of utility accounting methods in effect from time to time, or proposed by regulatory or utility representatives. Covers (1) early accounting history; (2) retirement accounts; (3) straight-line methods; (4) service lines; (5) interest methods; (6) reserve-size methods; (7) treatment of reserves; (8) relative advantages of available methods.

• ***Inductive Coordination of Electric Power and Communication Circuits*, by Laurence Jay Corbett (1936); 161 pages $1.75**

This excellent book discusses the nature of power transmission and of communication transmission, the effect of magnetic and electric induction and various influence factors. Susceptiveness and coupling factors, effects of conductor arrangements, transpositions in power and communication circuits and their coordination, power system wave shape, control of residual voltages and currents and many other phases are discussed. This book should contribute to a fuller understanding by power and communication engineers of each other's problems.

• ***Telephone Theory and Practice*, by Kempster B. Miller (1933); 1414 pages.....$19.50**

A set of three volumes. "Theory and Elements" (1930, 468 pages, $6.50); "Manual Switching and Substation Equipment" (1933, 439 pages, $6.50); and "Automatic Switching and Auxiliary Equipment" (1933, 494 pages, $6.50). Volumes may be purchased separately or as a set. This series replaces "American Telephone Practice" by the same author, published early in the century. The set comprises an excellent source of accurate information of entire subject of telephony.

• ***Fundamental Electronics and Vacuum Tubes*, by Arthur L. Albert (1938) 422 pages.....$6.00**

The increasing use of vacuum tubes in telephone work makes this non-mathematical book of practical value to persons in engineering and operating branches of telephony. The book discusses the principles of electronics and the theory of vacuum tubes, photocells and copperoxide varistors in telephone circuits and radio. It delves into the theory of these devices and the design and operation of circuits in which they are used.

TELEPHONY PUBLISHING CORP.

608 So. Dearborn St. **Telephone: WA bash 2-2435** **Chicago 5, Ill.**

XUM

eliminated. Recording the talk-out message—and it is vitally necessary that the user be able to do this quickly right at the instrument—becomes easy. He has only to pick up his handset (telephone), push a button, and talk.

To play back, he uses the same handset and pushes another button. Normally the telephone instrument is disconnected from the Peatrophone. Should a call come in while the handset is in use to record or play back, a buzzer is heard in the Peatrophone and the user can pick up the call instantly by pressing a button.

The next Peatrophone of interest was Model 57. This general type is the first Peatrophone used by Bell companies. It is shown in *Fig. 7*. In addition to features previously described, it has a number of others, such as:

(1) Automatic set-up light that tells the user he has *not* properly set the talk-out arm and recorder for automatic operation.

(2) Test button for testing talk-out record without calling central.

(3) Means to prevent starting a recording until tubes are in fully heated condition; warning lamp.

(4) Interlocking push-button controls so user can only push one button at a time to perform a single function.

(5) Automatic voice level control.

(6) Fixed terminal impedance.

(7) Adjustment for installer to set volume to meet the user's requirements, hearing, etc.

(8) Complete physical isolation of telephone line from Peatrophone circuits.

(9) Means to prevent "strays" from producing false starts.

(10) Means to prevent user leaving the machine without proper setting, and for restoring it to straight telephone or automatic answering position.

It may be said that, with the advent of the Model 57 series, the commercial introduction by operating telephone companies of telephone answering and recording devices began in the United States. Aside from the many advantages to the subscriber, the telephone company also benefits because there are no "don't answer" calls from Peatrophone equipped telephones. This means that the nickel or dime put into a pay-station remains there.

On toll calls, instead of trying again and again to reach the subscriber, the Peatrophone tells the operator on *the first call* where the subscriber can be reached and usually the call can be completed.

Answering and recording devices such as the Peatrophone are *not* conference recorders, nor should they be confused with manually controlled recorders for taking long messages. Experience has shown that the main use

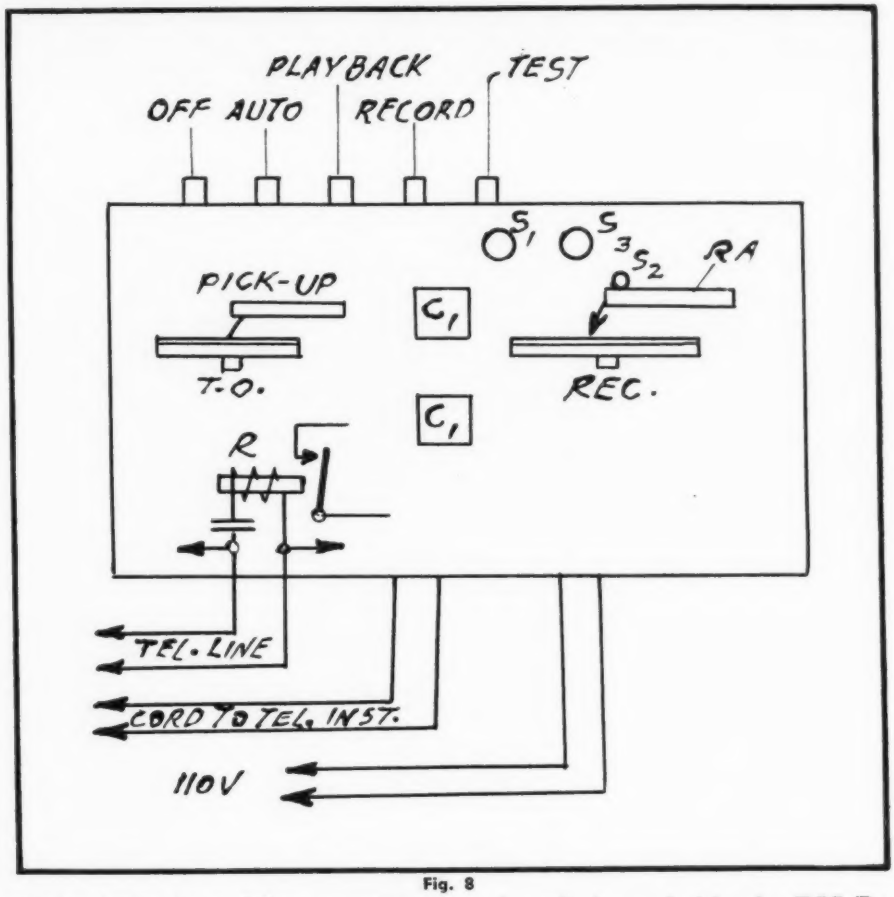


Fig. 8

of the device is to deliver a message not over 30 seconds long and to receive a message not over 23 seconds long; in many cases the calling party leaves no message.

The Peatrophone uses disk records because anyone can handle them, and the user gradually accumulates a collection of talk-out messages that he uses over and over again. He can also keep the callers' messages if desired. There are no tapes or wires to rewind or break and no adjustments to make to reset the machine after play-back. Any recorded message can be instantly reached without running through the entire recording from the beginning. In a late model embodying inventions of H. Wilson Cain pertaining to fine-line recording, an eight-inch disk will take over 150 messages on each side and will last the average user several weeks.

The matter of telephone answering and recording devices has been gone into by the Federal Communications Commission at the hearings (Docket 9383) held at Washington, D. C. These hearings were brought about in an endeavor by certain manufacturers of these devices (not Peatrophone) to compel telephone operating companies to permit the connection of such instruments to telephone lines. The writers understand there are state laws that prevent such "foreign connections" or attachments.

A preliminary decision by FCC Examiner Basil P. Cooper, issued on Nov. 14, 1951, denied the complaints filed by certain manufacturers of telephone answering equipment.

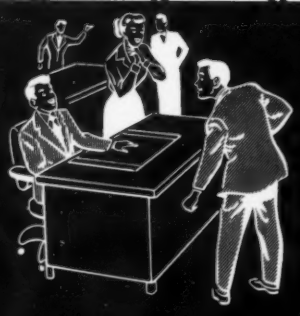
They had asked that the FCC change certain telephone company tariffs which prohibit the use of such attachments in connection with telephone service unless furnished, installed and maintained by the company. Cooper ruled against the Bell System and Independent telephone companies on two minor points. He found that (1) the FCC does have jurisdiction over such a controversy and (2) that there is a public need and demand for a telephone answering device.

On the main question, however, that of requiring telephone companies to permit the connection and use of telephone answering devices not under their control, Cooper sustained the telephone companies. He questioned the quality and efficiency of such equipment for interstate use under all service conditions, as presently developed, but left to the state commissions the decision of whether to permit such use at the intrastate level.

Unless appealed to the FCC, Cooper's decision was to have become final on Dec. 24, 1951.

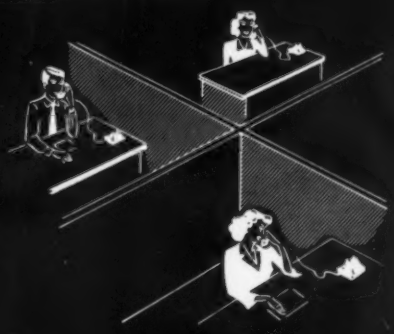
At the FCC hearings several instruments were discussed by the witnesses,

(Please turn to page 38)



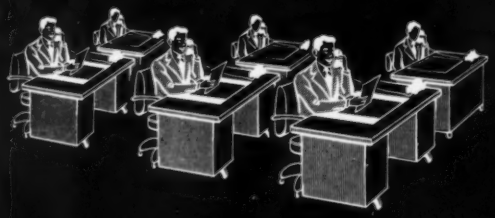
STOP

wasteful "legaphone communications" in offices of your business subscribers



HELP

them to make inter-departmental contact more efficient

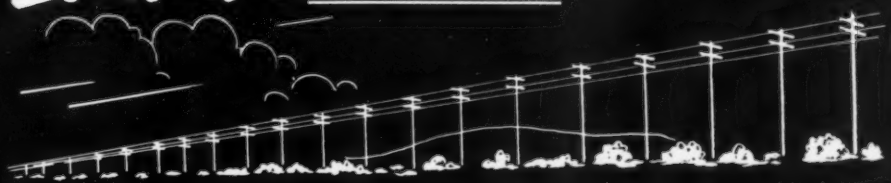


MULTIPLY

the earning outlets on your existing subscriber lines

EARN

more bankable income without expanding your present plant



Sell more PABX Service on existing lines!

IF you do not have a copy of the North PABX Sales kit . . . Phone for one today. A North engineer will help you put it to work.

THE NORTH ELECTRIC MANUFACTURING COMPANY

Originators of **ALL RELAY** *Systems of Automatic Switching*

1430 South Market Street, Galion, Ohio, U.S.A.

THE PLANT MAN'S *note book*

BY RAY BLAIN TECHNICAL EDITOR

THE good wife decided I needed a vacation with complete rest and plenty of sunshine, so early in December we headed the flivver toward the southland. First, we crossed over to the eastern shore of Maryland from Washington, and proceeded down the DelMarVa Peninsula and across to Norfolk via ferry. We then ambled leisurely down the coast of the Carolinas, Georgia and Florida, stopping wherever anything appeared interesting to us to snap color shots.

Contrary to my general principles, I had promised my "chief of staff" to cut loose from everything having to do with telephones; for otherwise, she reasoned, it would not be a restful vacation. This agreement was based on the assumption that long hours of telephone work (six and sometimes seven days a week for 11 months of the year) represent enough for any one man to devote to his profession and that this one month's vacation was to be free of all cares, telephonically speaking. Such an agreement prohibited visits to telephone exchanges and calls on telephone people, but did not restrict the taking of interesting telephone pictures.

The third day out we enjoyed lunch in the famous Biser's restaurant in Jacksonville, and then on to St. Augustine where we got some interesting color shots. We also enjoyed driving along the smooth sands of Daytona Beach, though we did not attempt any speed records. A tourist court at Daytona Beach, with accommodations comparable to the finest hotels, has a PBX and a telephone in each room. This was the first I had seen and it proved a real convenience for I found it necessary that night to make a toll call to San Diego, Cal., which was completed successfully from our room.

We visited a retired radio engineer in Ft. Lauderdale who lives on his cabin cruiser and passes the time in pursuit of his hobby—finishing color photographs. Ft. Lauderdale is a beautiful city and one of the few cities where, if properly equipped financially, one can have a boat parked at his back door and a car at the front of his residence. It is frequently referred to as the Venice of America because of its numerous beautiful canals.

Miami, also a big city, nevertheless is different, and we enjoyed a couple of days viewing the many fabulous points of interest. Coral Gables is the most beautiful residential section we have ever seen.

After Miami, the next stop was at Naples on the west coast of Florida. Here, we enjoyed some very good fishing from the public pier which extends for a considerable distance into the Gulf of Mexico. In Naples, also, we could not help but notice the neat and attractive trucks of the Inter County Telephone & Telegraph Co. for they are all painted a bright orange. This is certainly a most attractive as well as serviceable color and we wonder why more operating companies do not consider its use. We also noticed that this company has a light installation truck body, ladder rack and all, mounted on a Jeep chassis. This appears to be a most satisfactory arrangement and we believe that it should be used more generally throughout the industry. It should prove especially desirable for use in rural areas where roads are not the best at all times.

Next, we spent several pleasant days in Sarasota. Ringling Brothers & Barnum and Bailey circus have winter quarters here which provided us with several hours of interesting entertainment one sunny Sunday afternoon. We met and talked to several of the performers and learned how the animals of the menagerie live in their winter headquarters. We also learned what a mammoth establishment is required to properly maintain the "Greatest Show on Earth." The prefix of the Peninsular Telephone Co.'s exchange in Sarasota is now RINGLING.

Then, before starting the homeward trek, we looked over St. Petersburg and checked out at Tampa. Without a doubt, St. Petersburg has a greater percentage of old people than any city on earth. They play shuffle board, have many "get togethers" through state societies, etc., or just sit in the bright warm sunshine on the numerous benches provided for this purpose. From all appearances, these oldsters seem to be enjoying to the utmost this process of life extension. Tampa, though more industrial, is a beautiful city that anyone would enjoy.

When we left Tampa, we headed for Ocala and drove through the heart of the citrus belt. We never dreamed that so many oranges or grapefruit could possibly be produced per tree. Some trees were loaded to the breaking point with beautiful ripened fruit. We saw a new type of lemon, almost as large as a grapefruit, growing on young trees.

Florida is certainly in the midst of another real estate boom. This one, however, in the general opinion of many, is founded on firm principles and will not collapse as did a similar boom a few years ago. New houses are under construction everywhere and new real estate developments are numerous.

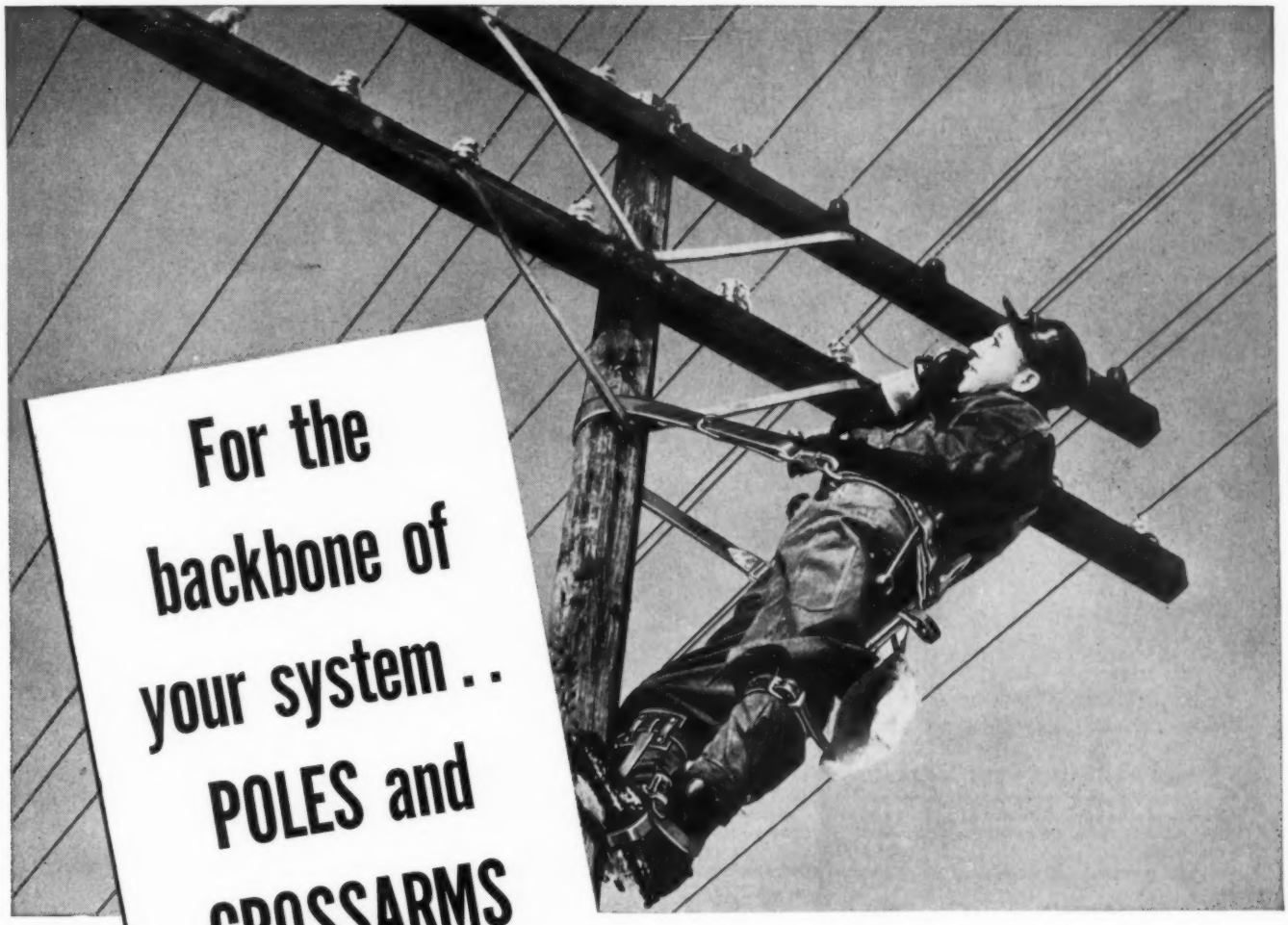
The problems of the telephone companies are tremendous everywhere we

(Please turn to page 42)

'The Wondrous Telephone'

"The Wondrous Telephone" was the first song about Bell's invention. It was published in 1877, the telephone's first year in business. A "Telephone March," a polka and a galop came out the same year, and since then more than 400 songs or musical numbers have been written about telephones or telephone calls.

For example, a hit early in this century was "Hello, Central, Give Me Heaven Because My Mamma's There." C. A. Swoyer, retired Ohio telephone man and a TELEPHONY correspondent, has that and hundreds more in a collection.



For the backbone of your system.. POLES and CROSSARMS

Via GraybaR

The pole-line backbone that supports today's essential lines of communication needs seasoned strength and durability to do its job efficiently and at low maintenance cost.

That's why leading independent telephone companies all over the nation choose Graybar for all their pole-line needs. They know that Graybar-distributed materials are always right for the job and stand up under abnormal stress of storms, ice, and snow.

POLES – Differing conditions lead to different local preferences. That's why Graybar distributes *all* types of poles – full-length, pressure-treated Southern Pine . . . full-length, pressure-treated Fir and Cedar . . . butt-treated Northern and Western Cedar.

All treated poles are carefully selected and processed to provide maximum strength and durability – plus the clean, smooth exterior surface required for city use.

CROSSARMS – Douglas fir crossarms via Graybar are selected and seasoned under rigid methods – are strong, long-lasting, and provide a wide margin of safety in the line.

POLE-LINE SUPPLIES – Graybar also distributes insulators, wire, cable, strand, hardware, tools, and hundreds of other first-line telephone supplies – all products of outstanding manufacturers.

To keep the backbone of your system strong, order your supplies from Graybar. You'll always get dependable items, and the nation-wide Graybar warehouse system helps assure the *fastest possible* deliveries under today's uncertain conditions.

For help in solving any of your *other* electrical problems, remember too, that the services of a Graybar Telephone Specialist are available through our nearest office. *Graybar Electric Company, Inc. Executive Offices: Graybar Bldg., New York 17, N. Y.*

138-231

Everything in Telephone Supplies *Via* GraybaR

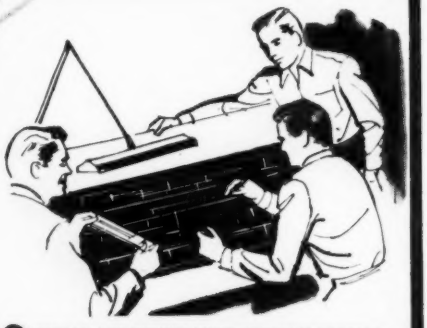
IN OVER 100 PRINCIPAL CITIES

XUM

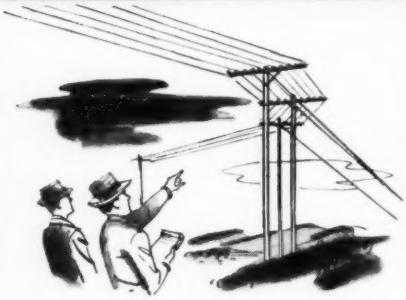
COMPLETE SERVICE insures
COMPLETE SATISFACT

❶ OUR ENGINEERS MAKE A SURVEY OF TRAFFIC and operating requirements in your exchange to determine the exact amount and types of switching equipment you need.

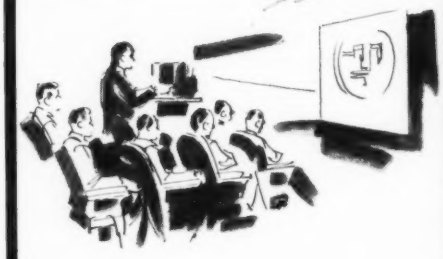
❷ WE HELP YOU TO ARRANGE FINANCING, to apply for up-graded rate adjustments, and to set up a time-saving record system.



❸ WE PLAN YOUR SWITCHING EQUIPMENT INDIVIDUALLY to meet the specific requirements of your exchange.



❹ WE HELP YOU PLAN YOUR TOLL SYSTEM, to enable you to handle the greatest volume of this desirable traffic—by physical lines, carrier, and radio.



❺ WE TRAIN YOUR TECHNICAL PERSONNEL in our well-equipped factory school if you request, or we supply books for "on the job" training

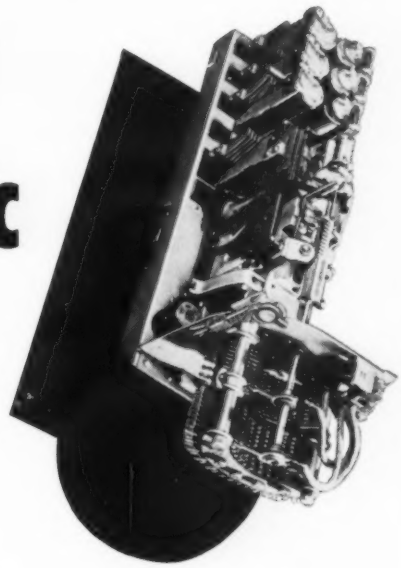
❼ OUR EXPERTS INSTALL YOUR NEW SWITCHING EQUIPMENT, if you wish—including power equipment and manual positions.

❽ OUR OPERATING ENGINEERS ARE ALWAYS AT YOUR CALL—throughout the life of your Strowger Automatic equipment—to consult with you on any phase of your exchange operations.

es your
CTON with

Strowger Automatic

World Famous for Dependability



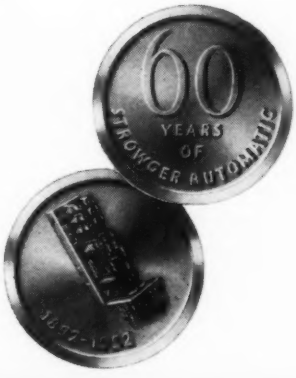
OUR DEMONSTRATION UNITS PRE-RE YOUR SUBSCRIBERS FOR AUTO-TIC SERVICE. We supply you with these ilable units on request.

There's nothing like the great warm glow of satisfaction you'll feel when *your* new switching equipment is called a "community success"! You can insure that success by specifying Strowger Automatic.

First, because Strowger Automatic is *proved dependable*—the *only* automatic switching equipment with a 60-year record of successful development and use.

Second, because we help you in every way possible. Our complete service begins with assistance in making field traffic studies; it continues through every stage of your conversion program, with counsel on plant improvements, and aid in such matters as public education, personnel training, and number assignments; and after conversion, you'll have the benefit of expert guidance in getting the most out of your equipment.

Take advantage of this valuable help! Like thousands of other telephone men, you'll find that our complete service insures your complete satisfaction with Strowger Automatic. Write us about your plans today!



AUTOMATIC ELECTRIC

Originators and Developers of the Strowger Step-by-Step "Director" for Register-Sender-Translator Operation . . . Machine Switching Automatic Dial Systems
Makers of Telephone, Signaling and Communication Apparatus . . Electrical Engineers, Designers and Consultants

Distributors in U. S. and Possessions: Automatic Electric Sales Corporation
Export Distributors: International Automatic Electric Corporation
1033 West Van Buren Street, Chicago 7, U. S. A.

XUM

PLANT MAN'S QUIZ

Q. We have several four-family apartments to wire for telephones in a new housing development and would be pleased to have your opinion as to whether four drop wires or a cable to serve each building should be installed.

A. It is our belief that a method should be selected which will prove the more economical and desirable in your particular case.

If the apartments are separated sufficiently and conduit has not been provided to carry the inside wiring, then perhaps separate drops and protectors would prove the more advantageous.

On the other hand, if building conduit has been provided to carry the inside wiring from the basement to the various telephone locations, it is believed that a small cable extended into each building would prove a good investment.

There is little doubt that, over a long term of years, the cable installation would result in material savings in maintenance costs over the drop wire method.

• • •

Q. When a lead cable is spliced inside a dry building, is there any objection to covering it with tape in lieu of the more expensive lead sleeve wiped in place?

A. Various operating companies are successfully using the taped cable splice when it is located inside a dry building. Frequently, these splices are placed in a wall terminal cabinet, or closet.

However, the lead sheath should be bridged across the splice in order to provide necessary bonding and the completed tape splice should be carefully painted with black asphaltum.

• • •

Q. We plan to tunnel a wide concrete street for the installation of a clay conduit installation. We are faced with the problem that the tunnel must be made considerably larger than is necessary to accommodate the conduit if space is to be provided so that men can properly install and cement the joints together. Do you have information on any method whereby it is possible to lay conduit in a small tunnel?

A. We have witnessed several different jobs wherein the conduit is first installed, dowel pins placed, and joints plastered on a 1-inch by 12-inch board several feet in length, and then pulled in place inside the tunnel by the use of a winch line.

Several boards may be connected together so as to reach the total distance through the tunnel. The trench outside the tunnel and the tunnel itself must be smooth and level on the bottom, and considerable power is required to pull the conduit section which is rather heavy.

All hitches should be strong and securely attached to prevent trouble. If, however, reasonable precautions are observed, this method will prove entirely satisfactory.

• • •

Q. Will it be satisfactory to connect a ground wire to a ground rod by the use of a clamp?

A. In general, this practice is not recommended in telephone work. There is an ever present danger that, in time, corrosion will cause a high resistance connection to the ground contact.

A better practice is to solder the connection to the ground rod. When a short length of wire is soldered to a ground rod, a ground wire may be connected by the use of a compression-type sleeve.

Or, the ground wire may be welded to the ground rod by a new method now available. No outside heat source is required with this method, because powdered copper oxide and aluminum are dumped from a handy cartridge into a small crucible and ignited by means of a spark. The resultant reaction reduces the copper oxide and produces molten copper at approximately 4,000 degrees F.

As the molten copper flows over the ground wire at the point of contact on the rod, these, too, become molten and in a few seconds are securely welded together in a solid homogeneous mass.

This type of contact is permanent and will not develop high resistance with age.

• • •

Q. In your opinion, can a cable-laying plow be used to advantage in the installation of exchange cable?

A. The modern cable plow is certainly a most economical method of installing buried cable on large jobs where obstructions are few and far between. It is, however, rather expensive equipment and is costly to operate.

When an operating company has a need for the installation of a great amount of buried cable, it is believed that it would do well to consider the services of a contractor who has the proper equipment available.

In view of the frequent obstructions encountered in most exchange areas, we seriously doubt if this method could be used to advantage in the installation of exchange cables.

We are firm in the opinion that a good conduit system will in practically every case prove a good investment when used in connection with the installation of exchange cable distribution systems.

• • •

Q. Can you advise us whether the mechanical type dehumidifier may be used to protect central office equipment from moisture when an exchange is located in a humid climate?

A. We have information concerning several cases in which this type of dehumidifier has been used profitably in telephone equipment rooms. However, it is generally necessary when using this equipment to close all windows and doors in order that the humidity may be maintained at a proper level inside the exchange.

V V

" 'Politicians have strained their ingenuity to discover new sources of public revenue. They have doubled the indirect taxes, such as customs due on imports and exports. They have continued the extraordinary taxes of wartime into peace times. They have broadened perilously the field of the income taxes as well as the property tax. . . .' The foregoing was said not last month when our income taxes were increased but more than 2,300 years ago by Socrates, an Athenian orator. And just a few years after the speech was made mighty Athens fell like an overripe apple."—New Martinsville (W. Va.) *Republican*.

demand it in your wood preservative, too

When you pick a wood preservative, base your judgment on records of actual performance. Consider how much wood, treated with Creosote Oil in the past half century, is still in service today and good for years more service in the future.

U·S·S Creosote Oil is continually undergoing the severest test of all . . . actual service under some of the most adverse conditions of use. And it is proving again and again it has the combination of toxicity and permanence necessary to give your treated wood the longest possible service life.

Continuous processing in the world's largest tar distillation plant makes U·S·S Creosote Oil a uniform product that will give uniformly good results. For immediate shipment by tank car or barge, contact our nearest sales office or write directly to United States Steel Company, 525 William Penn Place, Pittsburgh 30, Pennsylvania.

USS TRADE MARK

U·S·S CREOSOTE OIL

UNITED STATES STEEL

XUM

Courts and Commissions

Illinois Court Rules Telephone Listing Need Not Be Right

Cook County (Ill.) Superior Court, dismissing a $500,000 damage suit, ruled on Dec. 31 that a telephone company is not liable for damages in case of wrong number listings in directories.

The suit was brought by Robert E. Dowling, a lawyer of suburban Oak Park, against Illinois Bell Telephone Co.

Dowling alleged that his practice has been virtually destroyed because he spent thousands of hours answering calls for a record shop and a real estate office. He lost more business, he added, because operators did not tell callers about his new numbers after he had them changed to avoid the mixup with the record store and real estate firm.

Judge Louis P. Harris of DuQuoin, sitting in Cook County Superior Court, said the courts have held that issuance of a directory is a secondary function and not a required service of a telephone company.

V V

Illinois Company with REA Loan Seeks Higher Rates

Higher rates were sought on Jan. 8 by Champaign County (Ill.) Telephone Co. to pay the cost of converting its magneto exchanges to dial.

The company has been granted a $453,000 loan from the Rural Electrification Administration (REA), contingent upon a new rate structure sufficient to pay off the loan in 35 years.

Proposed new monthly rates, as set forth in a petition to Illinois Commerce Commission, with the present charges listed in parentheses, are:

City business, $5.50 ($4.00); one-party residence, $4.00 ($2.25); two-party residence, $3.50 ($1.75); rural residence (eight-party), $3.00 ($2.25); rural business, $4.00 ($2.25).

These rates, according to James L. Capel, legal counsel for the company, should yield a return of 5.1 per cent on its investment. The REA loan will bear interest at 2 per cent.

The exchanges to be converted to dial operation will be Tolono, Philo, Ogden, Ivesdale, Bondville, and Pesotum. A new exchange will be established in Royal.

Champaign County Telephone Co. has approximately 1,300 subscribers. Written applications for service are on hand from 250 more persons. Capel estimates the modernized system will serve about 1,600 subscribers.

Additional common stock in the amount of $42,000 is being issued by the company as part of the financing program required by the REA. The company now has outstanding 1,500 shares of no par value common stock.

V V

Subscribers to Decide On Service in Florida

It will be up to the individual subscribers in rural areas of five northeast Florida counties to decide whether they want to discontinue service from Southern Bell Telephone & Telegraph Co. and get service from a new cooperative, Santa Fe Telephone Co.

Florida Railroad & Public Utilities Commission turned down an application of Southern Bell for permission to abandon its service in the areas of Alachua, Putnam, Marion, Bradford and Clay counties, in which Santa Fe will serve.

Some subscribers of Southern Bell had protested that they were satisfied with the service they were getting and preferred it to that offered by Santa Fe.

The Santa Fe company is Florida's first cooperative telephone concern set up under the Rural Electrification Administration, which gave it a loan of $450,000 to get started. It plans to serve about 2,000 rural and small town subscribers, most of whom have no telephones now.

The commission said the Santa Fe company did not have to get its permission to operate, and it authorized Southern Bell to sell the cooperative whatever portions of its plant and franchises are not needed to serve Bell subscribers.

It said Southern Bell "may discontinue service to any individual subscriber in said territory upon the request of said subscriber."

However, it said, the commission "does not feel that it has the jurisdiction or the authority to authorize one public utility to discontinue serving satisfied customers for the sole purpose of allowing another utility to serve" them.

The commission said the cooperative is "preparing to render telephone service in a large area to persons who presently do not enjoy the convenient and necessary service" and found there was a great public need for it.

V V

Four Nebraska Companies Secure Rate Raises

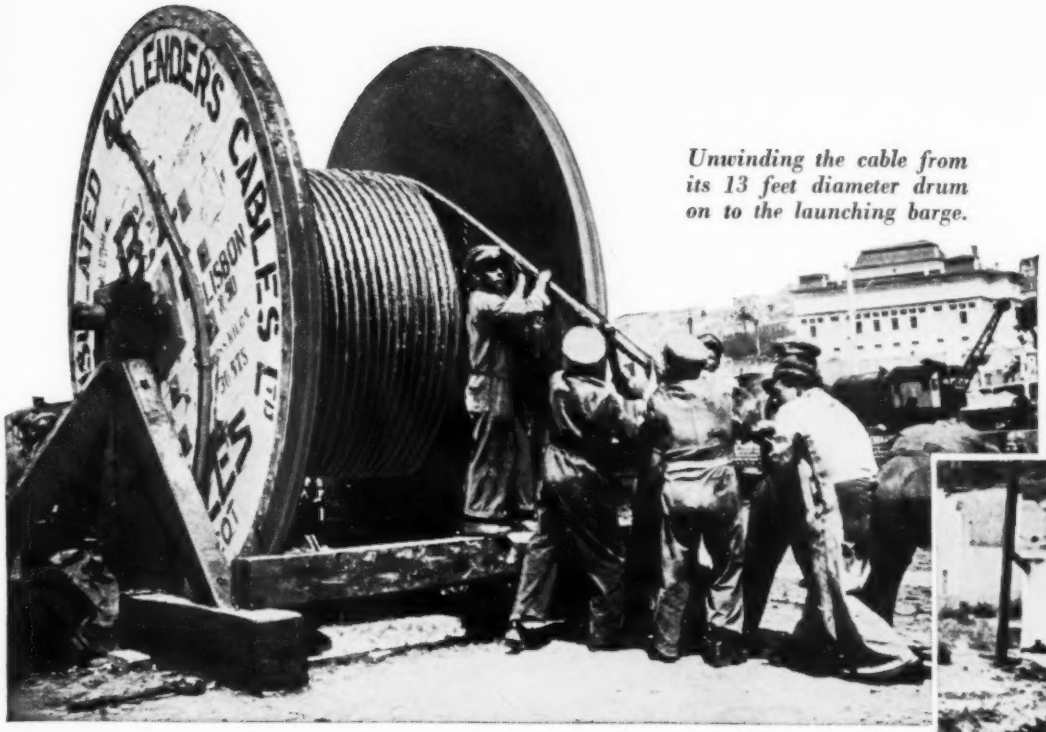
Four Nebraska telephone companies have recently been authorized by Nebraska Railway Commission to increase rates.

Farmers Telephone Co. of Dodge County, North Bend, which operates a total of 1,851 stations at five exchanges, was allowed to increase rates 25 cents a month at all of them. North Bend, with 581 stations, will pay $3.75 for one-party business; $3.25 for multi-party business; $2.50 for one-party residence and $2.25 for multi-party residence and rural, the latter being magneto service.

At Scribner, (541 stations), and at Dodge (359 stations) one-party business, magneto, $3.25, and common battery, $3.75; two-party business, $3.25, one-party residence, $2.50, and two-party residence and rural, $2.25.

Webster with 144 stations and Snyder with 133 stations are dial-operated. New rates there will be $3.50 for business and $2.60 and $2.75 for residence and rural. The company has 78 rural subscribers in the Fremont area that are switched by the Northwestern Bell and which have had rates raised to $3.25 for business and $2.50 for rural. These are all net rates.

In 1951 the company had operating revenues of $75,741 and a net profit of $10,066, or a return of 5.6 per cent. The new schedule is expected to increase gross revenues to $81,294, a net



Unwinding the cable from its 13 feet diameter drum on to the launching barge.

Pulling in the cable at the Terminal end.

Portugal's largest single-length telephone cable

A new submarine trunk-type telephone cable has been laid across the River Tagus at Lisbon by The Anglo-Portuguese Telephone Company Ltd. Specially manufactured by BICC, this 3-inch diameter cable is 2,406 yards long and is composed of 104 pairs of 20 lb conductors. It is the largest single-length cable ever supplied to Portugal and its installation has almost doubled the number of telephone toll circuits previously available across the Tagus.

This is a typical example of work constantly being undertaken by BICC to meet customers' specific requirements.

B.I. Callender's

TELEPHONE CABLES

BRITISH INSULATED CALLENDER'S CABLES LIMITED
NORFOLK HOUSE, NORFOLK STREET, LONDON, W.C.2, ENGLAND

Branches and Agents throughout the World

XUM

profit of $11,293 and a return of 6.56 per cent on an investment of $180,000.

Martell Telephone Co. was granted authority also to increase rates on all classes of service by 25 cents a month. The new schedule permits collection of $3.00 for individual and $2.50 for two-party business, $2.50 for one-party residence and $2.25 for multi-party residence and rural service. The company's lines are all metallic. Subscribers total 177, of whom 121 are rural.

A year ago the Martell company had asked approval of a schedule that was turned down by the commission because the rates contained would have given a return of 7.79 per cent. Since then operating expenses have increased materially, and the commission has taken a more lenient view. However, approval was conditioned upon the company, which has considerable deferred maintenance, carrying out a program of rehabilitation, particularly in rural areas.

The new rates will add $351 gross revenues to the present yearly income and will yield a net profit of $604 or 4.4 per cent on a plant value of $13,667.

Havana Telephone Co., Indianola, was allowed to increase rates in varying percentages, along with a set of charges covering supplemental services. Business rates are increased 50 cents to $3.50; one-party residence $1.85 to $3.00; multi-party residence, 90 cents to $2.50; rural business 50 cents to $3.00, and rural residence 65 cents to $2.50.

The new rates will add $4,667 to annual revenues. The commission found this necessary in order that the plant be properly maintained to provide service on a commercial basis. The company furnishes magneto service over metallicized lines. It serves 160 rural stations.

Benkelman Telephone Co., furnishing common battery service over metallicized lines to a total of 682 stations, was given permission to increase one-party business rates from $3.00 to $4.50; multi-party business rates from $2.75 to $3.25 and one-party residence from $2.50 to $3.00.

The increases apply to only 220 of the company's stations; they will add $2,460 to gross revenues. The company had gross revenues last year of $21,270 and net profit of $1,335, or 3.01 per cent on a rate base of $44,219.

V V

Kansas Company Incorporates

Central Kansas Telephone Co., Inc., Florence, incorporated on Dec. 27 at $28,100 in the office of the secretary of state. Bert Peterson of Florence is resident agent of the company operating a telephone system in the Florence area.

V V

C&P of Virginia Lowers Rate Request by $734,000

Chesapeake & Potomac Telephone Co. of Virginia has reduced by $734,000 the amount of additional revenue it is seeking through increased rates (TELEPHONY, Nov. 3, p. 26).

In a hearing before the Virginia Corporation Commission, the company lowered its request to $5,066,000 from $5,800,000 annually. The company said the decrease resulted from the application of new formulas that shifted more of its plant investment and operating expenses to the interstate long lines service of its parent company, American Telephone & Telegraph Co.

In the original request for its fourth rate increase since the end of World War II Chesapeake & Potomac estimated the increase would raise net income by $2,600,000.

V V

Minnesota Commission Approves Two Sales

Minnesota Railroad & Warehouse Commission authorized two sales of telephone property, one on Jan. 2, the other, Jan. 7.

The first approval was to Carlos Telephone Co., Alexandria, to sell all its capital stock to Alexandria Telephone Co. The Carlos company served approximately 75 local and 144 rural stations.

Bock Telephone Co. also secured approval for sale of all of its telephone properties to L. D. Wheelock.

V V

Rochester (N. Y.) Company Reclassified by FCC

The Rochester (N. Y.) Telephone Corp. won a reclassification of its status under the Communications Act when the Federal Communications Commission (FCC) issued the necessary order on Dec. 26, 1951.

In 1936 the company was classified by the commission as a fully subject one, because it was found to be under the control of New York Telephone Co. which owned a substantial block of Rochester stock. The commission's action was sustained by the United States Supreme Court in 1939, 307 U.S. 125-148.

In the order entered last month the commission stated that the basis upon which the earlier classification was made "no longer exists." The company accordingly is now listed as a Section 2(b)(2) carrier subject only to Sections 201-205 of the Communications Act.

V V

Pa. Commission Issues Three Orders Relating to Financing

Three orders relating to financing recently issued by Pennsylvania Public Utility Commission were:

Authority granted to West Branch Bell Telephone Co., Muncy, to issue a promissory note to Penn Mutual Life Insurance Co. in the principal amount of $100,000, bearing 4 per cent interest and maturing Sept. 1, 1971.

Approval given Bell Telephone Co. of Pennsylvania, for the issuance of 250,000 shares of common stock.

Extension granted to Franklin Telephone & Telegraph Co., Springtown, of statutory period for consideration of a securities certificate to be issued to the Franklin company in the matter of the issuance to the United States of America its first mortgage note for $125,000. (TELEPHONY, May 12, p. 14.)

V V

Stock Sale Expiration Date Extended for Nebraska Company

The time limit placed by the Nebraska Railway Commission on the authority given the Curtis Telephone Co. to sell preferred stock totaling $25,000 (the company reporting that so far it has sold but $5,250) was changed and a request was granted recently that the order be amended to make the expiration date Dec. 30, 1953. The company is planning a major cable job and a new common battery switchboard, and hopes to get enough additional capital to complete the program.

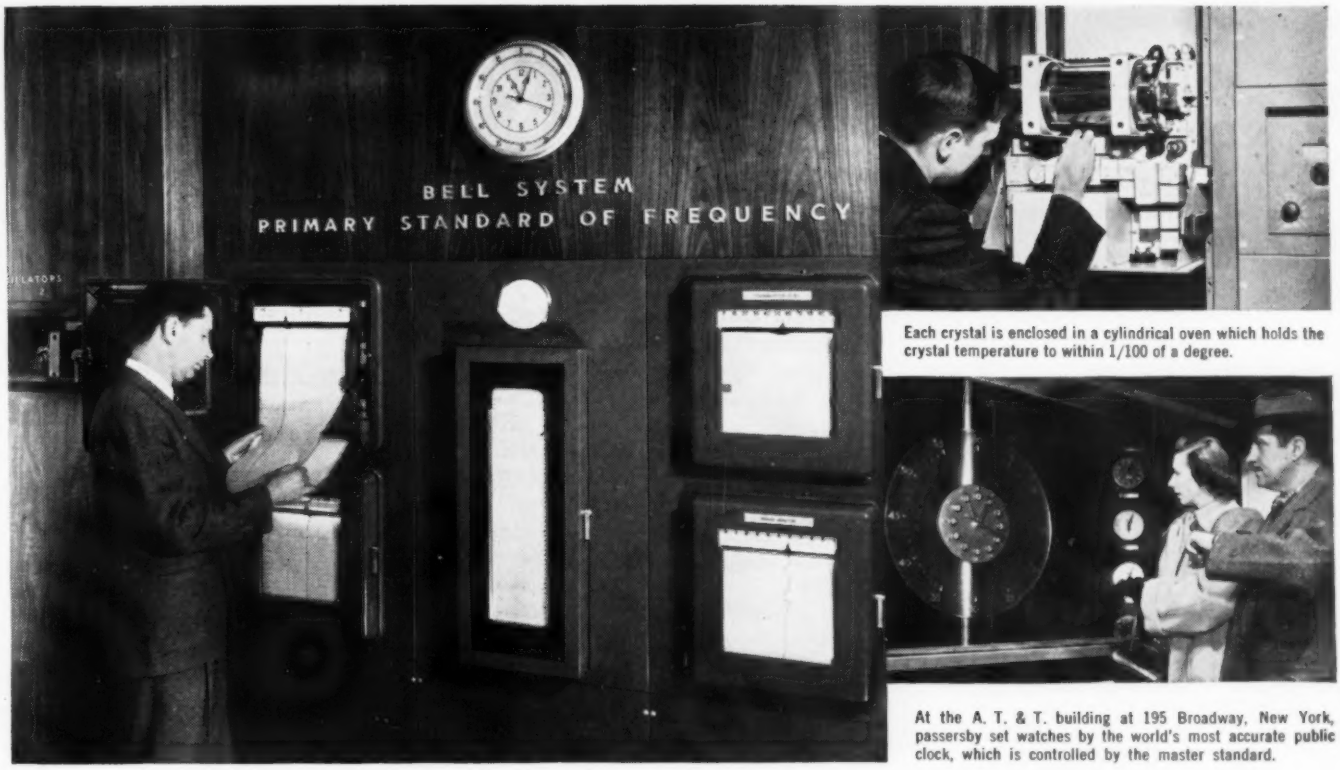
V V

N. C. Commission OK's Sale To Co-op with REA Loan

North Carolina Utilities Commission on Jan. 10 approved the sale of the telephone properties of Harmony Telephone Co., Turnersburg, to Yadkin Valley Telephone Membership Corp. for $15,000. The Harmony company sought approval of a contract and sale agreement entered into on Oct. 15, 1951.

According to the commission:

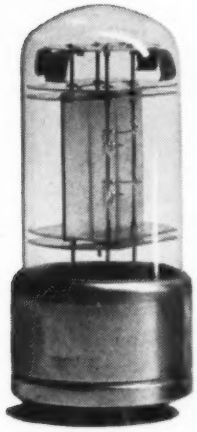
"The petition sets forth that the Harmony Telephone Co. now owns and operates physical telephone property consisting of a switchboard and approximately 90 miles of lines, together with an inventory of supplies, all of which is stated to have a reasonable value of approximately $15,000; that there are 115 subscribers and 119 main station telephones, with three extensions; that the petitioner company does not have and is not in a position to secure the necessary capital or operating personnel to adequately maintain and expand telephone service in accord-



Each crystal is enclosed in a cylindrical oven which holds the crystal temperature to within 1/100 of a degree.

At the A. T. & T. building at 195 Broadway, New York, passersby set watches by the world's most accurate public clock, which is controlled by the master standard.

Front of the new frequency-time standard at Bell Telephone Laboratories. In the rear there are 600 electron tubes and 25,000 soldered connections. Room temperature is maintained within two degrees.



The controlling quartz crystal vibrates in vacuum at 100,000 cycles per second. The standard is powered by storage batteries, with steam turbo-generator standing by, just in case of emergency.

A vibrating crystal keeps master time

Ever since Galileo watched a lamp swinging in the Cathedral of Pisa three centuries ago, steady vibration has provided the practical measure of time. In the 1920s Bell Laboratories physicists proved that the quartz crystal oscillators they had developed to control electrical vibration frequency in your telephone system could pace out time more accurately than ever before.

The Laboratories' latest master standard keeps an electric current vibrating at a frequency that varies only one part in a billion, keeping time to one ten-thousandth second a day.

Through secondary standards, a master oscillator governs the carrier frequencies of the Bell System's ship-to-shore, overseas and mobile radio-telephone services, the coaxial and *Radio Relay* systems which transmit hundreds of simultaneous conversations, or television. In the northeastern states, it keeps electric clocks on time through check signals supplied to electric light and power companies.

The new standard also provides an independent reference for time measurements made by the U. S. Naval Observatory and the National Bureau of Standards. Thus, world science benefits from a Laboratories development originally aimed at producing more and better telephone service.

BELL TELEPHONE LABORATORIES

Improving telephone service for America provides careers for creative men in scientific and technical fields.

ance with the public need in its general franchise area, and for this reason the petitioner desires to sell its present property and go out of the telephone business. . . .

"Upon inquiry the commission has been informed that all of the petitioner's present subscribers desire the proposed sale and transfer to take place and have in fact signed applications for membership in the Yadkin Valley Telephone Membership Corp., having already paid membership and equity fees of $30 each."

The federal Rural Electrification Administration has already approved a loan to said membership corporation.

As to limits of its jurisdiction, the commission observed:

"The Yadkin Valley Telephone Membership Corp. is a cooperative and as such will not be by law under the regulatory jurisdiction of this commission. Nor is it required that a franchise certificate be issued. All that the commission is authorized to do by way of granting the petition is to cancel the present franchise rights of the Harmony Telephone Co. and approve the sale of its properties for the sum stated, upon the assurance that adequate and satisfactory telephone service will be furnished by the said telephone membership corporation to its subscriber members."

V V

Bell of Pennsylvania Plans To Buy Two Independents

Subject to approval of the proper regulatory bodies, the Bell Telephone Co. of Pennsylvania will purchase the facilities of Hopewell Independent Telephone Co. and Frankfort Telephone Company, according to a local source.

The Hopewell company operates the Gringo central office with 400 subscribers, while the Frankfort company operates the Frankfort Springs general office which has 40 subscribers.

V V

Orders SW States Company To Serve 55 in Rural Area

Southwestern States Telephone Co. recently was ordered by Oklahoma Corporation Commission to offer service to about 55 residents of the rural area in the vicinity of Meeker. Most of them live from five to 10 miles from Meeker and some have been trying to get service for months, but objected to paying the tariffs as filed by the company.

The commission ordered the company to file new tariffs for its rural service in the Meeker exchange area to provide a half mile of free extension of pole and wire construction from the town border and charge a maximum of $40 for each one-tenth mile of additional construction per customer. These charges are in addition to the regular monthly rates for rural service.

The order, issued by the commission on Jan. 7, sustains the findings of Referee Paul R. Reed, who conducted the hearings, and followed recommendations made by B. Richardson, commission telephone engineer, who made several investigations in the area.

V V

Nebraska Company Permitted To Increase PBX Rates

Approval has been given by the Nebraska Railway Commission of proposed revisions in tariffs of the Lincoln Telephone & Telegraph Co. covering PBX installations where communication needs of the subscriber require unusual or additional equipment. Authorized changes were in charges for dial PBX systems where the subscriber desires automatic ringing at stations for calls originating from the attendant's cabinet; charges for PBX stations in hospitals under an arrangement that will permit the hospital to furnish portable telephones when desired by patients in guest rooms, and for deletion of exceptions to the charge applicable to a charge for conference jacks.

V V

Pennsylvania Bell Applies For $2.6 Million Increase

Bell Telephone Co. of Pennsylvania has applied to Pennsylvania Public Utility Commission for general rate increases throughout the state to yield $2,696,300 in additional revenues monthly.

Among the changes, which would take effect on Mar. 7, would be an increase in the five-cent paystation rate to 10 cents. Intrastate station-to-station toll charges up to 150 miles would go up five cents, and charges for basic business service would be subject to increases ranging from 50 cents to $2.00 a month.

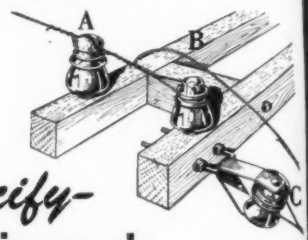
V V

Commission Denies Transfer Of Service in Arkansas

An application by the Linder Corp., Kensett, Ark., to have its telephone service transferred from Southwestern States Telephone Co. to Southwestern Bell Telephone Co. was denied in an order issued by Arkansas Public Service Commission on Jan. 4.

In its application for the transfer, the Linder Corp., makers of wood flooring, complained of poor service.

The commission ordered Southwestern States to make necessary improvements to render adequate service to Linder and that Linder seek an agreement with the telephone company

Construction M
With the Double G
and America's Le
for dead-ending spans of
300 to 400 feet


specify-
hemingray's
No. 110 insulator

This new insulator was designed to conform with specifications of the Association of American Railroads, for clevis-type dead-ends on spans of 300 to 400 feet. In the sketch above, "A" and "B" are Hemingray's No. 43 and 45, and "C" is the new 110.
The triple upper-skirt rings produce very low leakage. And leakage to lower clevis arm is reduced to a minimum by the exceptionally deep petticoat.
Packed: 40 to a carton, weighing 49½ lbs. A product of American Structural Products Company.
STROMBERG Telephone CARLSON
TELEPHONES, SWITCHBOARDS • SOUND

Materials and Supplies . . .

Guarantee of Stromberg-Carlson Leading Manufacturers . . .

the new Cook testerm *drop wire connector . . .*

reduces the annoyance of high resistance connections, facilitates testing, and reduces maintenance costs.

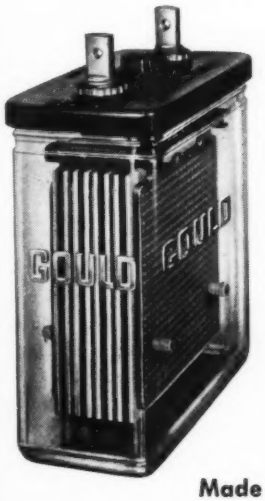
A great improvement in the method of connecting subscriber drops to open wire. "Testerm" is mounted on the cross-arm and provides a dry spot connection, thus insuring improved transmission.

Tie wires are attached to the open line wires with a split sleeve and are terminated on two 12-24 studs that are set in a glazed, low moisture absorption, porcelain block.

Drop wires are attached to the same studs. This permits testing without opening a taped connector.

The one-piece drawn metal hood is Monel. The terminal is weather-proof and all metal parts are rust-proofed.

the battery that lasts practically forever



gould planté

For long life and uniform dependable service, no other telephone battery equals the Gould Planté. It has rolled up amazing performance records, remaining in active full-float service for 20 years, 30 years and longer!

In the Planté, *all* of each positive plate is pure lead, containing *no* antimonial impurities. Thus, Gould has eliminated the primary cause of self-discharge, capacity losses and shortened battery life. Planté batteries float at constant voltage and maintain rated capacity all their life. Because they almost never need service, maintenance is negligible. If you would cut battery costs to a minimum, choose Planté.

Made by GOULD-NATIONAL BATTERIES, INC.

ANSONIA Ankoseal

the modern, all-plastic, lightweight telephone cable . . .

saves three ways—

1. Lower first cost
2. Lower installed cost
3. Lower maintenance cost

Available for aerial, duct and direct burial use. For complete information contact your nearest Stromberg-Carlson Field Office.

THE ANSONIA ELECTRICAL COMPANY

Subsidiary of Noma Electric Corporation
Ansonia, Connecticut

Distributed by STROMBERG-CARLSON

ROCHESTER 3, NEW YORK

EQUIPMENT AND ELECTRONIC CARILLONS • INDUSTRIAL, INTERCOMMUNICATION SYSTEMS • TELEVISION, RADIOS AND RADIO-PHONOGRAPHS

which will result in better maintenance of lines running across Linder's property.

In another order, the commission set Jan. 23 as the hearing date on an application by Arthur E. Pleasant to sell the Flippin Telephone Co. to Northern Arkansas Telephone Co. Also to be heard at the session is an application by Ozark Telephone Cooperative, Inc., to construct and operate rural telephone lines and systems.

V V

N. D. Commission Upholds Increase Granted NW Bell

North Dakota Public Service Commission ruled on Jan. 3 that a rate increase granted Northwestern Bell Telephone Co. in 1948 was "not excessive or unreasonably high."

The decision ended an investigation of the increase ordered by the 1949 session of the legislature after it was charged the increase had been granted without sufficient hearing from the opposition.

The commission order said that a million dollar bond, put up by the company to cover repayments in the event the rate increase was found to be unwarranted, is to be refunded.

The commission said it found the company was not making a rate of return on its North Dakota investment which a commission expert witness, Dr. Lionel Thatcher of the University of Maryland, said it should have. Thatcher set 5.75 per cent as a fair rate of return.

V V

Authorizes Missouri Increase To Provide 4.6% Return

Western Light & Telephone Co., Kansas City, Kan., was authorized on Jan. 9 to increase its Missouri telephone rates by $102,109 a year.

The Missouri Public Service Commission decided that amount would give the company an increase of $81,812 in its net operating income, or a return of about 4.6 per cent.

At the same time the commission told the company it must improve its service at Keytesville and other places where subscribers complained of poor telephone service.

V V

Oregon-Washington Company Seeks $84,800 Gross Increase

A request of Oregon-Washington Telephone Co., Hood River, Ore., for authority to boost its rates was submitted recently to Washington Public Service Commission.

The commission said the company is seeking an increase of $84,800 in its annual gross revenues — an amount equivalent to a net increase of $40,700 after federal income taxes have been deducted. The increase would average approximately 7.3 per cent, but the increase to each customer would vary, depending on the exchange to which he is connected.

The company serves 24 communities in the two states.

V V

Michigan Bell Ordered To Refund $10,084,000

Michigan Bell Telephone Co. on Jan 7 was ordered to make a $10,084,000 refund to its customers by the state supreme court, which upheld a decision by Michigan Public Service Commission denying the company's application for a rate increase (TELEPHONY, Dec. 1, p. 30).

The refunds will be for the period between Jan. 1, 1946, and Oct. 14, 1948.

The money has been held in escrow since the company appealed the public service commission ruling.

'Good News Telephone'

Capsule sermons over the "Good News Telephone" are available 24 hours a day to St. Paul, Minn., residents who feel they need an inspirational lift.

The one-minute sermons are given by Rev. Harley M. Racer, a 72-year-old retired missionary who has adopted the telephone as a means of bringing cheer to many anonymous callers.

Searching for "something to do" after his forced retirement because of ill health, Rev. Racer found his assignment four years ago when an anonymous caller apologized for dialing the minister's number by mistake. Rev. Racer, feeling that his caller's anxiety might be relieved by a word of good news, reached for his Bible and delivered his first capsule sermon. Since then he has delivered more than 100,000 good news sermons, some of them to regular callers.

Another minister who accidentally found a similar assignment delivering capsule sermons over the telephone was the Rev. James Jefferson Davis (Dad) Hall, who died on Sept. 6 at the age of 86 in his tiny mission in New York City. Known as the "telephone preacher," he had comforted thousands of New Yorkers with his one-minute telephone sermons.

FOR PROMPT DELIVERY
ON ANY TYPE OF TELEPHONE CORD GO
COMMERCIAL
AND YOU'LL GET
ECONOMY · QUALITY · SERVICE
COMMERCIAL CORD AND SUPPLY CO., INC.
26 EAST MAIN STREET
CLIFTON SPRINGS, N. Y.
PHONE—CLIFTON SPRINGS 189 · WRITE FOR SAMPLES AND QUOTATIONS

Stop Monkeying With Census

(Continued from page 14)

1940, to 17.59 in 1945, to 23.8 in 1950, the years when the census bureau's definitions of a farm were more or less truly comparable.

In the second place, there is the statement, credited to REA sources, that "big companies" reluctance to extend service to rural areas has been responsible for the drop in farm telephones. Now, while this may be true in isolated cases, it is not generally true as, by far, the majority of telephone companies have been willing to extend rural service, if and when the farmers were willing to pay a going rate for service.

On this point, there is no doubt that many of the areas where telephone service has deteriorated, or has been non-existent, are the territories in which loosely organized or poorly managed mutuals, cooperatives and farmer-owned systems, formed many years ago, serve. This is not to say that all mutuals or co-ops have been guilty of not adequately serving their territories, but a majority of them have not maintained, expanded, or improved their systems. Would it be expecting too much that REA mention this fact?

Thirdly, there is the statement in the Dallas newspaper's editorial, also credited to REA sources, that the gain in Texas farm telephones in recent years has resulted from federal loans to rural companies and cooperatives. According to the record and REA's own loan statistics, this claim cannot be supported.

It is well known that REA's telephone loan program did not actually get underway until Feb. 24, 1950, when it approved its first loan allocation to the Florala (Ala.) Telephone Co., only two months before the Apr. 30, 1950, census. It is perfectly safe to say that, as of that date, not a dollar of REA money had actually passed into circulation anywhere in the United States —not a single construction job had started as the result of REA financing. Nor had a single Texas loan even been "allocated." Obviously then, the suggestion that REA loans have been responsible for any gain in farm telephones up to the time of the census, either in Texas or in any state, is entirely without foundation, as REA would doubtless agree. But see what a wrong impression the Texas newspaper editor got out of the publicity hand-out!

This situation remains about the same today. As of Sept. 30, 1951, REA had approved 11 loan allocations in Texas, for only eight of which contracts had been approved. Under the 11 loan allocations, according to REA, only 17,601 new rural telephones are to be added. If all of these 17,601 telephones were installed and working today, the increase would represent a small percentage gain on the total of 331,494 Texas farms, reported by the census bureau for 1950. However it is reasonably safe to say that not many, if any, of these new telephones are working today. And what is true of Texas, is more or less borne out in other states.

What does this all add up to? Simply a plea for fair play on the part of REA or anyone else handling figures on farm telephones, or attempting to interpret them. We could use some mighty snide inferences about REA operations, if we wanted to angle our shots! Why is it that REA was able to approve "allocations" totaling nearly 83 per cent of its total appropriations to date, for farm telephone loans ($66,000,000) as of the end of 1951—but

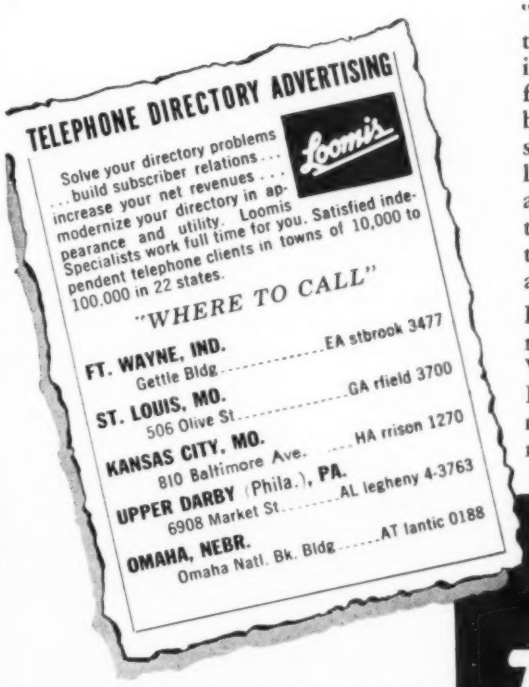
Why Directory Advertising?

USE THESE TESTED POINTS TO PRODUCE MORE PROFITS FOR YOU . . .

11. MULTIPLE LISTINGS. Are you satisfied with your telephone directory? Is it well-organized for convenient and ready reference as a buying guide? Does it include all the classifications that our modern life demands?

You may be missing out on "multiple listing" opportunities to increase your advertising revenue, if your directory falls below standard. Loomis builds directories, better than standard, with modern catalog-type formats that encourage advertisers to list *all* of their business activities and tie in with their national affiliations.

Begin increasing your net revenue through advertising. We invite you to call or write Loomis today for an appointment with a telephone directory expert.


TELEPHONE DIRECTORY ADVERTISING
Solve your directory problems . . . build subscriber relations . . . increase your net revenues . . . modernize your directory in appearance and utility. Loomis Specialists work full time for you. Satisfied independent telephone clients in towns of 10,000 to 100,000 in 22 states.
Loomis
"WHERE TO CALL"
FT. WAYNE, IND. Gettle Bldg. EA stbrook 3477
ST. LOUIS, MO. 506 Olive St. GA rfield 3700
KANSAS CITY, MO. 810 Baltimore Ave. HA rrison 1270
UPPER DARBY (Phila.), PA. 6908 Market St. AL legheny 4-3763
OMAHA, NEBR. Omaha Natl. Bk. Bldg. AT lantic 0188

● More than 300 Loomis-built telephone directories now are serving 650 cities and towns. Loomis clients report continued increases in net revenue every year.

Loomis
ADVERTISING COMPANY

XUM

had managed to get only about *4 per cent* of that amount into actual circulation? But we don't make any such inference—that REA is trying to put a lot of paper loans in its books, in order to justify more appropriations. We don't do that, because we know that, eventually, the rest of the loan money, or most of it, will be drawn and put to work. This is just an example.

What this whole thing involves is simply a case of playing the publicity game squarely. If REA must tell any story at all, it ought to tell the *whole* story, without slanting or coloration. If it must use different measuring rods for different years, it ought to explain them. And in no event should it make comparisons which do not take into account all the facts.

In the Nation's Capital

(Concluded from page 16)

entitled to a 50 per cent reduction on monthly bills while the others receive from a 25 per cent to 33⅓ per cent discount. Virginia commissioners not only receive free telephone service but free service from Western Union, and free passage on the Virginia railroads and buses. There was no evidence that this "special service" had any appreciable effect on the rate of return.

The question of tax savings is another rather unique development, which may find echoes in other cases involving Bell System companies. The commission's accountants argued that Chesapeake & Potomac will save nearly $700,000 in its 1951 income tax because the mother company, AT&T, is able to file a consolidated return on all subsidiary companies. In other words, the Virginia company does not file a separate income tax return because its income is accounted for in the over-all return of the AT&T.

The commission accountant claims that, because AT&T enjoys substantial tax savings (as a result of subtracting interest payment on debt capital from its return) the Virginia company ought to share in this saving. And if the Virginia company shares in the saving, the accountant thought the saving ought to be credited to the Virginia company's return, making it that much easier on the Virginia rate-payers.

But the telephone company's witness pointed out that it is AT&T which has the debt which gives rise to the deductible interest payments. AT&T's debt securities amount to 46 per cent, whereas the Virginia company has only about 8 per cent debt. He failed to see how the Virginia company could properly receive credit for interest deductions made by the AT&T on AT&T debt. In other words, the fact that the Virginia company would have to pay a higher income tax if it filed a separate return because of its own low debt structure is a theoretical saving which would make mighty thin dividends.

The testimony in the Virginia case has been completed and, following final argument, of course, we should soon have a decision from the state commission on the important points raised.

V V

"The public has yielded to exorbitant 'taxes, controls, restrictions' to an extent that has enabled bureaucracy and outright dictatorship to thrive and expand to a thoroughly alarming degree. It has stood by and seen its money shrink steadily in value, its earnings and profits seized, its rights trampled under foot. Yet it is told over and over that it doesn't cooperate. It seems to us it's time the public begins telling the bureaucrats a few things." — Pampa (Tex.) *Daily News*.

Answering and Recording Machine

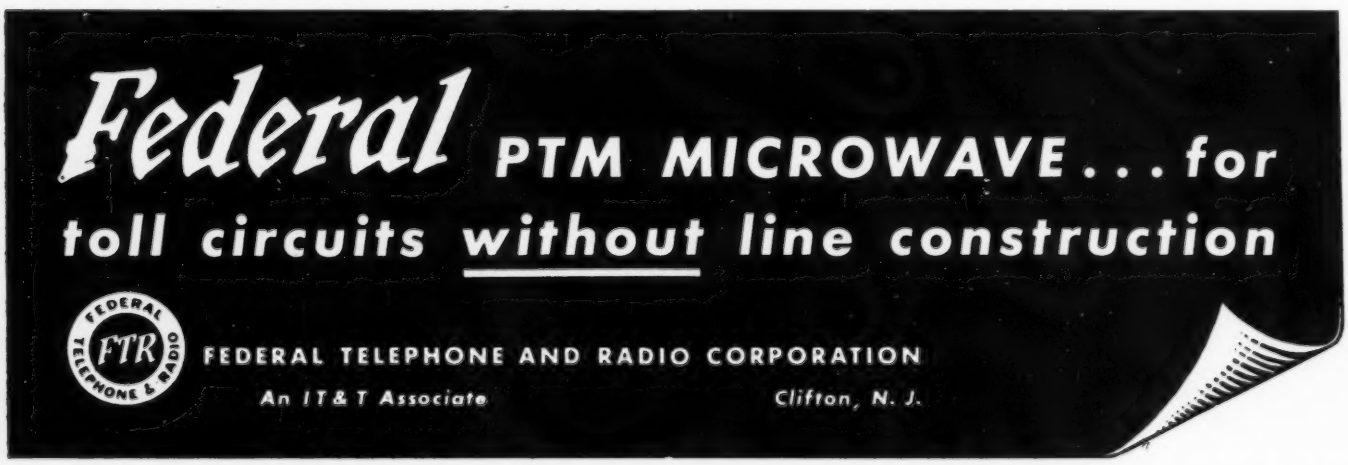
(Continued from page 22)

who testified as to the objectionable features of acoustic and inductively coupled devices and those wherein the device is provided with an arm to operate the telephone hook switch. Testimony was also given as to why the Peatrophone was selected by the telephone company in preference to other devices and this testimony is very interesting in that it outlined the characteristics necessary in a device if it is to be acceptable to the operating companies.

Telephone Answering & Recording Corp., makers of the Peatrophone, believe that, in withholding the Peatrophone until fully perfected and then selling them only to operating telephone companies, it has pursued the right course not only in the interests of the telephone industry but of the public as well.

It is believed, based on years of experience with these devices, that a telephone company should own, install and operate all equipment used with the telephone system. If this dictum is ignored, we may well live to see any kind of cheap and dangerous gadget hooked up to the telephone line by inexperienced personnel. This applies equally well to any device that has not been thoroughly developed and field tested under all possible operating conditions and in close cooperation with telephone operating companies.

The basic cycle of the Peatrophone is shown in *Fig. 8*. The five buttons interlock so that only one of them can be depressed and locked down at a time. When the "off" button is down, the telephone instrument is connected directly to the line and the Peatro-



An on-the-job guide to telephony— and its relation to other phases of . .

ELECTRICAL COMMUNICATION

THIRD EDITION

By ARTHUR L. ALBERT, *Oregon State College*

Electrical Communication considers the specialized fields of the subject as they are related to one another in modern communication systems. The author treats the entire industry—including the transmission of code, speech and music by wire and by radio. Every topic is covered in a completely modern, up-to-date way, and AIEE and IRE standards are closely followed.

COVERING—

Dial telephony . . . telephone lines, cables, radio transmission lines, telegraphy, and telephone systems . . . acoustics and electroacoustic devices . . . electric networks, including impedance-transforming circuits and wave filters . . . and many other topics. The practical factual material is supplemented by informative, useful diagrams, charts and photographs—over 420 illustrations are included in this third edition.

1950 *593 pages* *423 illus.* *$6.50*

For sale by

TELEPHONY

608 S. Dearborn St. Chicago 5, Ill.

SERIES OF BOOKS ON

Foremanship and Supervision

by HARRY C. WALKER, Ph.D., *Plant Training Supervisor*
SOUTHERN BELL TELEPHONE AND TELEGRAPH CO.

In these three books Dr. Walker gives us the fruit of a quarter century of experience as a craftsman, foreman, engineer, supervisor, conference leader and teacher in industry. Written in simple, straightforward English they have been recognized as outstanding manuals for training foremen and supervisors.

★ **ORAL EXPRESSION IN SUPERVISION is designed to aid the foreman in making talks to his men, leading conferences, teaching industrial subjects and holding interviews. $1.00 each.**

★ **THE FUNCTIONAL ELEMENT IN SUPERVISION is a basic analysis of the foreman's duties. $1.00 each.**

★ **THE HUMAN ELEMENT IN SUPERVISION is an application of the principals of personnel counselling to foremanship. $1.00 each.**

TELEPHONY PUBLISHING CORP.

608 SOUTH DEARBORN STREET CHICAGO 5, ILL.

A NAME TO REMEMBER

Across the nation Kennecott Cable helps make telephone service more reliable.

Every time you see the Kennecott name on a cable reel you can be sure that the cable has been tested and re-tested for accuracy in manufacture and performance.

Quality control from raw material to finished cable assures you that you can always count on Kennecott for fine cable.

Call your nearest Chase sales office for complete information.

CHASE BRASS & COPPER CO.
Waterbury 20, Conn.
DISTRIBUTOR FOR
KENNECOTT WIRE & CABLE CO.
SUBSIDIARIES OF KENNECOTT COPPER CORPORATION

CHASE WAREHOUSES and OFFICES:

Albany†	Chicago	Denver†	Kansas City, Mo.	New York	San Francisco
Atlanta	Cincinnati	Detroit	Los Angeles	Philadelphia	Seattle
Baltimore	Cleveland	Houston†	Milwaukee	Pittsburgh	Waterbury
Boston	Dallas	Indianapolis	Minneapolis	Providence	
			Newark	Rochester†	
			New Orleans	St. Louis	

(†sales office only)

XUM

FREE
BOOKLET
describes tests and specifications on neoprene jacketed drop wire
Neoprene jacketed drop wire has been universally accepted for its ability to outlast other types and thereby decrease maintenance costs on drop installations.
A half hour spent reading this free booklet will practically make you an expert on neoprene drop wire. It tells you what to look for and what to expect from neoprene. It describes fully, the specifications for conductors, insulation, adhesion, conductivity. It explains in detail the tests on voltage, compression, aging, bending, etc.
Write today for your copy. No charge, no obligation. Use the handy coupon below.
ALPHADUCT WIRE AND CABLE COMPANY • MILLTOWN, NEW JERSEY
NATIONAL DISTRIBUTORS • LEICH SALES CORPORATION, CHICAGO, ILL.
REGIONAL DISTRIBUTORS • PANKEY SUPPLY CO., CHARLOTTESVILLE, VA.
THE LINDSAY TELEPHONE SUPPLY CO., CLEVELAND, OHIO
MAIL THIS COUPON
ALPHADUCT WIRE & CABLE CO.
Milltown, New Jersey
Please send free booklet describing tests and specifications for neoprene jacketed drop wire.
Send booklet on ☐ parallel ☐ twisted pair
Company
Per
Address

phone is disconnected, the 110-volt current supply being cut off. We now have an ordinary telephone line. When the "Auto" button is down, a relay R in series with a condenser, is connected across the telephone (or to either line and ground on party lines) and the telephone instrument is disconnected. If now the line is tested from the central office, it will give the same readings as if the telephone were connected, as the characteristics of relay R are the same as those of the ringer in the telephone. All standard tests can, therefore, be made as usual.

The subscriber now makes the talk-out message on a disk which is first placed on the turntable of the recorder REC. To do this, the "record" button is locked down and a signal lamp S1 is lighted to warn the user to restore this button when finished. The tubes warm up and when they have reached recording level (a few seconds) a signal lamp S2 is lighted, the REC motor starts and the subscriber speaks into his telephone transmitter as usual, and the message is recorded.

The subscriber now moves the record from the REC turntable to the talk-out (TO) turntable, and sets the talk-out pick-up on it. To test this message, the subscriber locks down the TEST button and hears the message he dictated through his telephone. The TEST button automatically restores.

It takes the average person about two minutes to make and test a talk-out record.

The TO record being in position on the TO turntable, the subscriber may put a record blank on the REC motor turntable and lock in the AUTO button. A signal lamp S3 tells the subscriber if he has not set arms TO and RA to starting position. The average person can set the Peatrophone on AUTO in five seconds.

Current (about 15 watts) is applied to the Peatrophone as it awaits a call, and an incoming call on the line operates relay R which starts the talk-out phonograph TO and the message on the record thereof will be delivered to the line, and the calling subscriber will hear it. Current consumption while in operation is about one-half ampere.

Upon completion of this message (which terminates with a notice to listen for the signal) a tone signal is given the calling subscriber as required by the FCC, control device C1 operates, the TO turntable stops, TO pick-up arm returns to starting position and recording turntable starts. The incoming message is then recorded on the record blank on the REC table.

After 23 seconds recording, a second

tone signal is given and shortly thereafter the lower control C1 operates, stopping the REC turntable. The Peatrophone now awaits the next call.

Upon the subscriber's return to the Peatrophone, he sees that some messages have been recorded and, accordingly, locks down the "PLAYBACK" button, moves the recording arm RA off the record, moves the TO pick-up arm to this record, and plays back the recorded messages via his telephone, repeating them as often as desired. The average person can set the Peatrophone up for play-back in less than five seconds. Warning signal S1 prevents the subscriber from leaving the Peatrophone with play-back button down.

If at any time the subscriber is using his telephone to record or play back, and there is an incoming call, it causes an audible signal at R, whereupon the subscriber merely presses the "OFF" button and picks up the call, using the telephone as usual.

Should there be a current failure at any time, the Peatrophone automatically restores to normal and, therefore, does not tie up the telephone line in case of trouble in the Peatrophone.

Should a record be filled with messages, the Peatrophone will automatically disconnect itself from the line and no further calls will be answered, as is the case with an unattended telephone.

The Peatrophone is now equipped with an entirely new type of amplifier that has been developed during the last year. This amplifier has full AGC, or automatic gain control. In other words, this machine will play back messages recorded 50 db down or under conditions below that considered marginal at approximately the same volume that it records and plays back messages that are recorded under ideal short loop conditions, making it almost impossible to miss any part of a message no matter how poor the line conditions may be.

The telephone line circuit is completely isolated from all circuits in the Peatrophone by an isolation transformer complying with Underwriters' specifications and having a breakdown of several hundred volts.

The casing cannot be opened except by special tools, and a safety switch disables all power circuits upon removal of the casing. All high voltage circuits in the amplifier are completely insulated to protect the service man, and the amplifier is removable as a unit by simply unplugging it.

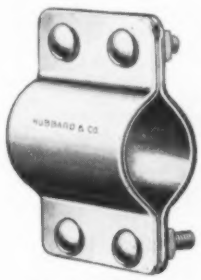
To install a Peatrophone it is only necessary to disconnect the telephone

HANG THE LOAD ON HUBBARD HARDWARE

HUBBARD GRADE CLAMPS

Hot Galvanized

No. 8984
PRESSED STEEL CLAMP



No. 8989
FORGED STEEL CLAMP

A problem often encountered in telephone construction is the "creeping" of cables which are run on grades. A convenient method of preventing this is the use of Hubbard Grade Clamps. These clamps are designed to grip both the messenger and cable securely and yet not harm the relatively soft cable sheath. The efficiency of this design is such that Hubbard Grade Clamps permanently maintain both messenger and cable in the same relative position, and eliminate "creeping."

Pressed Steel Clamps are 12-inches long by 7⅛-inches wide and are furnished with stove bolts. Drop Forged Clamps are furnished with four ½-inch oval neck clamp bolts. Sizes available for all standard messengers and cables.

HUBBARD HARDWARE FOR THE TELEPHONE LINE

OVERHEAD

Cable Suspension Material—Wireholders
Pole Seats and Balconies—Clevises
Braces—Drive Hooks—Messenger Dead Ends—Extension Arms—Long Span Material—Pins—Clamps—Guards—Stubbing Bands—Guy Protectors—Guy Clamps
Pole Struts—Clips—Straps—Hangers
Carriage Bolts—Rings—Transposition Brackets—Eye Bolts—Pole, Corner and House Brackets—Guy Hooks—Strain Plates—Storm Guy Straps—Lags—Machine and Hubeye Bolts—Sidewalk Guys
REA Telephone Hardware

UNDERGROUND

Cable Racks—Manhole Ladders and Steps
Pulling-in Irons—Expanding Anchors
Cable Shields—Screw Steelwing Anchors
Anchor Rods—Ground Rods and Clamps

HUBBARD AND COMPANY
ESTABLISHED 1843
PITTSBURGH • CHICAGO • OAKLAND, CALIFORNIA
"Hang the Load on Hubbard Hardware!"

line from the telephone and connect it to the Peatrophone, then connect the telephone thereto. Experience shows that the installer seldom requires more than 15 or 20 minutes to make an installation, and perhaps 30 minutes to instruct the user in the operation of the machine.

Peatrophone play-back and recording needles are everlasting and require no removal.

It is thought that the story of the development of the Peatrophone will be of interest, for it will be seen that the final instrument was not arrived at solely by a "flash of genius"—once referred to as necessary to invention by the Supreme Court (a decision much misunderstood and, the writers believe, no longer controlling)—but by years of careful study and development not only of the instrument itself but of the problems met with in the operating telephone field.

V V

USITA Makes Suggestion on Use of Drop Wire

The following advice to telephone companies concerning the use of critical materials was given in the following item appearing in a recent letter by the United States Independent Telephone Association:

"The need for conservation of critical materials becomes more urgent with each passing day. We have no hesitancy, therefore, in recommending for consideration by companies using bronze drop wire the advisability of substituting copper-clad steel wire which we are informed has a copper content up to 70 per cent less than bronze wire. Such substitution will also help to conserve for more essential use the available supplies of tin and zinc which go into the production of bronze wire.

"Copper-clad steel drop wire has been used successfully over long periods by most companies. It is strongly urged, therefore, that companies still using bronze drop wire give prompt consideration to the substitution suggested. Otherwise it appears reasonable to expect that further restrictions will be imposed on the permitted use of tin and zinc for more essential communications purposes.

"The importance of this measure as well as others designed to conserve critical materials is further emphasized by the following remark contained in a statement made recently by DPA Administrator Fleischmann after a new year review of DPA-NPA progress:

"'At present, it is estimated that shortages of basic materials will be most acute during the second and third quarters of 1952, with only a slight easing during the closing months of 1952. Defense officials warn that, although everything possible will be done to lessen the impact of civilian shortages through conservation and substitution of materials and by rigorous screening of requirements to assure prompt and efficient use of raw materials, the United States in 1952 will come to realize the full meaning of "cutting the coat to fit the cloth."'"

Plant Man's Notebook

(Concluded from page 24)

go today as they struggle to keep pace with the parade. It was further noted that all new construction appears to be of exceptional quality. There is a lot of underground cable construction with aerial drop wire distribution. Riser cables feed terminals mounted on poles that also support drop wire which extends to houses. This should prove good, trouble-free plant even during periods of severe storm.

Underground service entrances to fine homes are to be seen everywhere throughout Florida. In our opinion, this is a very good idea and one that should be employed more generally. Certainly a drop wire attached to a fine home does not add anything to its beauty.

Now we know why so many people love Florida. We, too, got sand in our shoes so perhaps someday we shall return to that land of sunshine, palm trees, flowers and contentment. There is some comfort in the thought that, not unlike old soldiers, old telephone men never die. They just move to Florida and fish away!

V V

Four Telephone Clauses In Proposed Virginia Bill

Bills have been introduced in the Virginia legislature by Sen. Edward O. McCue Jr., Charlottesville, which would:

Limit the net income of telephone companies to five per cent of their investment.

Provide that "net original cost" shall be the basis of determining the value of telephone property for rate-making purposes.

Limit telephone companies to paying no more than three per cent interest on any issuance of stock or other long-term indebtedness.

Require a state corporation commission hearing for any community of more than eight persons requesting telephones.

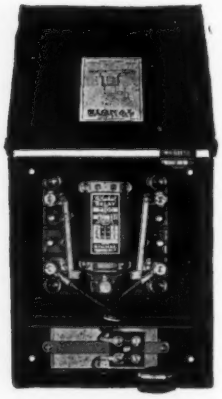
V V

Canadian Bell Appointment

Philip J. McGinnis, a former director of the Advertising and Sales Executive Club of Montreal, Que., Canada, has been appointed advertising manager of Bell Telephone Co. of Canada. He moves to Montreal from Toronto, succeeding Robert C. Scrivener.

TELEPHONE LOUD RINGING SETS

For use where ordinary telephone does not assure prompt answer



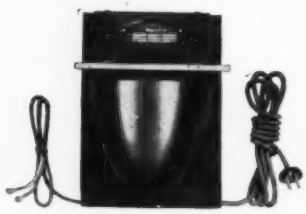
3-HB Relay Set
for manual or dial machine ringing central office lines

Designed as a "Duo Potential" single unit set (single unit includes relays), as illustrated, or as a two-unit set, for operating from telephone ringing current. Available for any standard ringing current, to supplement or replace telephone ringer, or as a loud ringing extension. At 90 volts, 20 cycles, current is 15 milliamperes. Moisture-proof, form wound, impregnated coil. Sensitivity adjustable.

Catalog TR4 upon request.

Duo Potential or Standard Signals are available in various sizes.

★ Duo Potential Bell



★ Duo Potential Chime

Ringer

SINGLE UNIT SET—*Duo Potential (unit includes relay).*
TWO UNIT SET—The telephone ringing current operates relay set, which in turn closes power circuit to Signals.

Wheelock RELAYS
SIGNAL
ENGINEERING & MFG. CO.
154 WEST 14TH ST. NEW YORK 11 N.Y.

Wage-Hour Administrator Broadens "Sleeping-Time" Rule

A relaxation of the rules relating to sleeping time of night telephone switchboard operators is contained in a letter to Clyde S. Bailey, executive vice president, United States Independent Telephone Association, from Wage-Hour Administrator William R. McComb dated Jan. 8, 1952. Decisions of the U.S. Supreme Court and of lower federal courts have seemed to adopt the view that sleeping time or waiting time is the equivalent of working time and must be compensated as such in accordance with the terms of the Fair Labor Standards Act, Bailey points out.

In his letter to Bailey, McComb pointed out that "where sleeping facilities are provided, periods during the hours regularly spent in sleeping which are sufficiently long to afford the operator an adequate opportunity for sleep need not be counted as hours worked if, during these periods, calls are only occasional and infrequent so that the employe can obtain relatively uninterrupted sleep (and) five hours would be regarded as a period sufficiently long for this purpose."

According to the USITA executive vice president, it has been learned that the McComb letter was inspired by a complaint referred to the Wage-Hour Division from a regional office that a telephone company was not compensating night operators in instances in which the five hours mentioned were not relatively "uninterrupted" by incoming calls. The employer in question was treating two or three hours of relatively uninterrupted sleep as sufficient to avoid payment for so-called sleeping time during the period of the night hitch.

Telephone companies are urged by the USITA to conform their employment practices respecting compensation of night operators to the terms of the administrator's letter.

According to Bailey, in conforming their practices to the McComb ruling, companies need not be concerned about any conflict between his letter and the court decisions alluded to, for the reason that anything done in good faith in conformity with, and in reliance upon an administrative regulation, or interpretation, is a defense in any action brought for overtime wages under the Fair Labor Standards Act. Congress wrote such a defense into the law when it enacted the Portal-to-Portal Act of 1947. (Public Law 49—80th Congress, approved May 14, 1947; Part IV, Sec. 9.)

Exchanges having less than 750 stations are entirely exempt from the

SEALED in STEEL

RAY-O-VAC

Batteries Supplied by BUCKEYE Mean

- **Fewer Replacements**
- **Lower Operating Cost**
- **Longer Life**

Power plus, "Sealed in Steel" . . . that's what you get when you specify Ray-O-Vac LEAKPROOF flashlight batteries. Completely steel clad with nine ply insulation, there's absolute protection against corrosion damage for every make of flashlight and a scientifically compounded mix to give you countless hours of light when you need it. For fewer replacements and lower operating costs, insist on Ray-O-Vac . . . and remember, there's a Ray-O-Vac for every purpose, telephone, industrial, railroad and radio. Ask Buckeye for information regarding your battery necessities to-day.

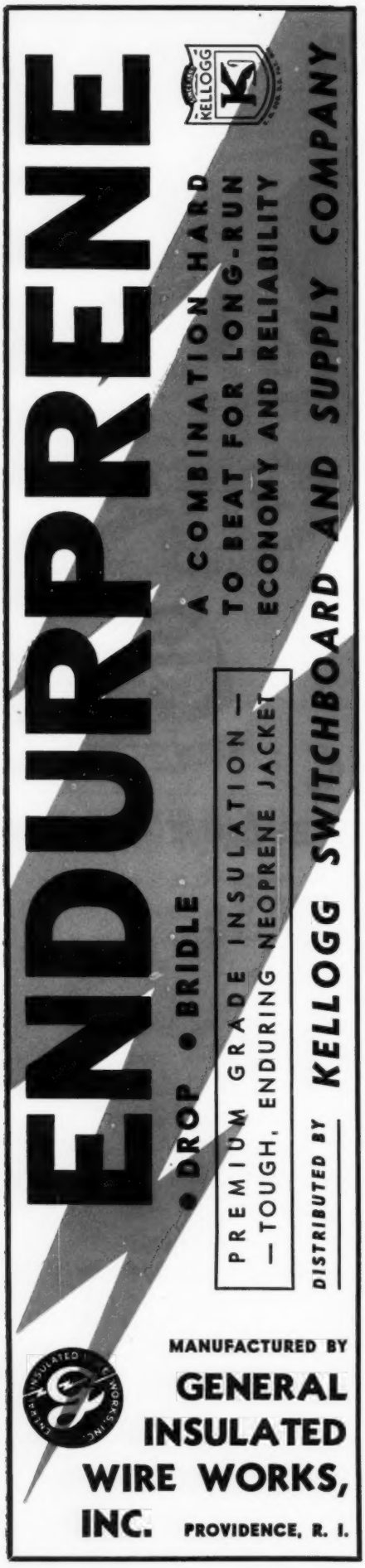
•

WE HAVE A LARGE STOCK OF THE FAMOUS No. 6 TEL. CELL FOR IMMEDIATE SHIPMENT

BUCKEYE TELEPHONE & SUPPLY CO.

1250 KINNEAR RD. **COLUMBUS 12, OHIO**

XUM


ENDURPRENE
• DROP • BRIDLE
A COMBINATION HARD TO BEAT FOR LONG-RUN ECONOMY AND RELIABILITY
PREMIUM GRADE INSULATION — TOUGH, ENDURING NEOPRENE JACKET
DISTRIBUTED BY KELLOGG SWITCHBOARD AND SUPPLY COMPANY
MANUFACTURED BY
GENERAL INSULATED WIRE WORKS, INC. PROVIDENCE, R. I.

wage-hour provisions of the Fair Labor Standards Act so far as telephone switchboard operators are concerned.

V V

Accounting Service in New York Set Up by H. A. Fisk Jr.

Harry A. Fisk Jr. recently established an accounting service with headquarters in Albany, N. Y. He is specializing in performing a complete service for telephone companies.

Fisk is widely known throughout New York State as the former president and general manager of Dundee Telephone & Telegraph Co. Prior to operating the Dundee property, Fisk was employed in the accounting department of New York Telephone Co. for 17 years.

V V

AT&T Long Lines Summarizes 1951 TV Network Growth

Summarizing the Bell System's progress in the provision of nationwide intercity network television facilities, H. I. Romnes, director of operations for AT&T's Long Lines Department, pointed out that, "during 1951 Long Lines added about 6,500 miles of TV channels, bringing the total to over 24,000. Four cities were added to the network during the period, making available live network programs to 14 stations not served in 1950. Investment in facilities used for TV rose to 85 million dollars.

"Highlight of 1951 was the establishment of coast-to-coast service over the new transcontinental microwave radio-relay system, linking Salt Lake City, San Francisco, and Los Angeles to the network, enabling viewers on the Pacific Coast, as well as those of the Middle Western and Eastern states, to see live telecasts simultaneously for the first time. Other projects included the addition of Binghamton, N. Y. to the network, the equipping of a coaxial cable from Memphis to provide a second route to Birmingham and Atlanta, and the addition of several new channels on existing routes."

Reviewing some of the post war communication developments Romnes pointed out that toll telephone messages for the average day jumped from 4.6 million in 1945 to more than 6 million in 1951. Demands for service poured in from the military and government: Networks of telephone and teletypewriter circuits were required for air and civilian defense as well as for the nation's industries gearing for all out production. Since January, 1946, Long Lines has added almost 350 million dollars of new plant to serve the growing needs of the nation's long distance telephone users and has a program underway for the construction of 180 million dollars more in the near future.

"The rapid development of intercity television networks since the war is best illustrated," Romnes said, "by the fact that on Jan. 1, 1947, less than five years ago, the Long Lines network consisted of two channels interconnecting stations at New York and Washington for a total of 476 miles. Now 24,000 channel miles provide service to 86 stations in 46 cities."

Theater television demands, Romnes said, have also been on the rise. Since the first commercial theater television service was furnished by the Bell System on June 15, 1948, 33 theaters in 17 cities have received service.

Dates for the next year's program, Romnes pointed out, are difficult to establish, due to the priority of construction for national defense and possible material shortages. Nevertheless, he said, "Long Lines is moving along with its plans and hopes during the year to add Miami, New Orleans, Houston, Dallas, Ft. Worth, San Antonio, Oklahoma City, and Tulsa to its network. Other plans include the connection at Buffalo with a proposed Canadian link to Toronto and the provision of additional channels over existing routes."

V V

E. G. Morgan Retires After 30 Years with Ohio Company

E. G. Morgan, district manager of the Eaton office of Ohio Telephone Service Co., Sidney, retired recently after 30 years in that position, and after 50 years of service in the industry.

He is being succeeded by Ernest R. Hetzler, who formerly was branch manager at Greenville.

V V

Symbols Standardized for Single-Line Diagrams

American Standard Graphical Symbols for Single (One) Line Electrical Engineering Diagrams, Z32.1.1-1951, has been approved by the American Standards Assoc. This standard coordinates and modifies the single-line diagrams contained in the American Standard Graphical Symbols for Electrical Power and Control, Z32.3-1946, and for telephone, telegraph and radio use, Z32.5-1944.

For the first time single-line diagrams for use in both power and communication work are combined and contained in one volume. They represent agreement reached by representatives of the electric, telephone and telegraph, radio, and public utility industries, and the government on standard single-line symbols. These diagrams

show the function of a part rather than a picture of it, and are especially helpful when drafting complicated circuits where use of the customary two lines would involve a great many complex drawings, American Standards Assoc. reports.

The standard contains 81 sections covering symbols for almost all electrical engineering work in the fields of power and communication. Each term is accompanied by a drawing of the correct symbol and in some cases an alternate symbol.

Sample diagrams are given in an appendix showing the use of the single-line system. The drawings illustrate a laboratory sound system, microwave test set up, telephone repeater and line equipment, and power equipment.

The American Institute of Electrical Engineers and the American Society of Mechanical Engineers sponsored the development of this standard under the procedures of the American Standards Assoc.

Copies of the American Standard Graphical Symbols for Single (One) Line Electrical Engineering Diagrams, Z32.1.1-1951, may be obtained from American Standards Assoc., 70 E. 45th St., New York 17, N. Y., at $1.40 per copy.

V V

'Uncle Harry' Gets More Taxes Than All Past Presidents

President Truman has collected more taxes from the American people than all other presidents combined, according to a recent report by the Chamber of Commerce of the United States.

His administration has spent more than one-third of all the money ever spent by the United States government, the report said.

A study of treasury figures by the chamber's Government Economy Program shows that federal receipts from July 1, 1945, through last Nov. 16 totaled slightly over 262 billion dollars. Total federal receipts from 1789 through June 30, 1945, totaled only 254 billion dollars.

In its entire history, the federal government has spent 770 billion dollars, or more than three quarters of a trillion dollars. Well over a third of this amount (282 billion dollars) has been spent by the present administration.

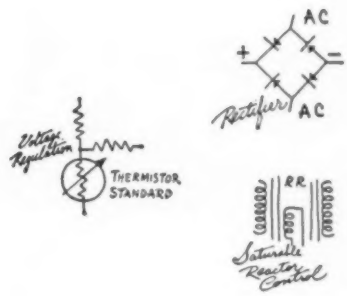
Total receipts in our entire history have amounted to 516 billion dollars. The Truman administration has collected 50.8 per cent of this total.

The chamber noted that the purchasing power of the dollar has been declining, so that the 262 billion dollars of taxes collected by the present

HIGHER EFFICIENCY

OVER WIDE LOAD RANGE WITH PECO BATTERY CHARGERS

- New control circuits
- Reduced stand-by power consumption
- Accurately controlled



PECo Battery Chargers establish a new standard of efficiency in charging equipment . . . Incorporating the latest developments in selenium rectifier stacks, transformers and saturable reactors, power loss has been cut to a minimum. Convection cooled, there are no fans, blowers or other moving parts; thus maintenance is minimized, and stand-by power loss reduced to practically zero. Important, too, is the fact that this new higher efficiency has been achieved with *no sacrifice* of control accuracy . . . Look into a PECo Battery Charger; you will find an outstanding quality in both workmanship and material; you will find that every component is conservatively rated to give an extra guarantee of safety, efficiency and durability . . . Write today for complete information.

POWER EQUIPMENT Company

Specialists in Controlled Rectifiers Since 1935

55 ANTOINETTE STREET / DETROIT 2, MICHIGAN

XUM

Paragon
Paragon
Paragon
Paragon
Paragon
Paragon

For over 40 years this name has meant to telephone men the top quality in

Insulated Telephone Wire

Always a leader in offering the latest improvements—the best in both conductor and insulation—Paragon has established a reputation for quality.

Today Paragon Offers

the latest approved types of all insulated telephone wire: —

Drop Wire
Interior Wire
Duct Wire
Bridle Wire
Jumper Wire
Tree Wire
Ground Wire

You will be serving your company well to specify "Paragon" on all your insulated wire orders.

TELEPHONE DIVISION

Paragon Electric Co. Two Rivers Wisconsin

SINCE 1889
NATCO
CLAY CONDUIT

The proved and standard Protection for Underground Telephone Cables.
Cheapest in the long run. Highest quality and a full line of shapes.

National Fireproofing Corp.
327 FIFTH AVE.
PITTSBURGH 22, PA.

administration are not worth as much as the 254 billion dollars collected by all the other administrations in history; but it pointed out that most economists agree that federal financial policies are a primary cause of inflation.

The chamber statement follows:

The federal government has taken more money from the taxpayers during the Truman administration than during all other administrations combined. On the same basis, one third of all the money ever spent by the United States has been spent in the past six years by this administration.

On Tuesday, Sept. 18, of this year, according to an analysis of official treasury figures by the chamber's Government Economy Program, net receipts of the federal government during this administration passed above the total net receipts of all other administrations from those of George Washington through Franklin D. Roosevelt.

Since then, tax money has continued to pour in so that by Nov. 16 the present administration was already 8 billion dollars ahead of all others combined.

By Nov. 16, total spending by the federal government since 1789 had reached 770 billion dollars, or more than three quarters of a trillion dollars. More than a third of the total spending in our history, or 282 billion dollars, has occurred under the present administration.

The pertinent facts are as follows:

	NET RECEIPTS OF FEDERAL GOVT.	EXPENDITURES OF FEDERAL GOVT.
162 years, 1789 to June 30, 1945	254.2 Billions	488.8 Billions
6 years, July 1, 1945, to Nov. 16, 1951	262.6 Billions	281.8 Billions
Total, 1789 to Nov. 16, 1951	516.8 Billions	770.6 Billions
Per cent of total in last six years	50.8%	36.6%

Source: Annual report of the secretary of the treasury, 1950, and daily treasury statements.

The period used for the present administration begins with fiscal year 1946 (July 1, 1945-June 30, 1946). President Roosevelt died on Apr. 12, 1945, so that part of April, as well as May and June of 1945, technically belong under the present administration. This period is not included, however, since the budget for those months had already been established by the Roosevelt administration. If May and June had been included, the present administration's receipts would have been approximately 9 billion dollars higher, and the expenditures 19 billion dollars higher.

It is recognized, of course, that the purchasing power represented by the 262.6 billion dollars of receipts after July 1, 1945, is not equivalent to that of the 254.2 billion dollars before that time, since the value of the dollar has been declining.

Net receipts of the federal government consist almost entirely of tax collections and tax-type receipts. Of total receipts of 41.3 billion dollars in 1950, for example, 39.9 billion dollars consisted of internal revenue receipts (income and other direct taxes) and customs. The remainder included some tax-type payments, such as railroad unemployment insurance, as well as Panama Canal tolls, sale of surplus property, fines and penalties and other items.

V V

Nebraska Independent Plans $300,000 Modernization

Otto Fuerst, general manager of Platte Valley (Neb.) Telephone Corp., has announced that a construction program totaling $300,000 has been planned for 1952.

The plan includes modernization of its properties in far western Nebraska and in Wyoming, if sufficient materials can be obtained. The Investors Telephone Co. of Chicago, which owns Platte Valley and properties elsewhere, has sold 1 million dollars of bonds to Mutual Life Insurance Co. of New York and another unidentified investor corporation.

V V

File For Incorporation For Mid-Rivers (Mont.) Service

Mid-Rivers (Mont.) Telephone Co. applied recently to the secretary of state to incorporate, according to Everett Hill of Bloomfield, chairman.

Present at a meeting of the temporary board in Circle recently were Hill, who represents Dawson County; Bill Haidle of Prairie; Jake Latka of Richland; Albert Hoffman of McCone; William Porter; Fred Becker, treasurer; Leland Cade, secretary, and J. L. Bowlin of the telephone division of REA. Other members of the board are Ed Hughes and Gaylord Oakland.

The company plans to build a telephone system, to serve in five counties, at a cost of $1,804,000.

V V

"It is surprising how many people there are who imagine that the government has a means for obtaining money that makes its gifts to the people real benefits. The fact is that the government has no means for obtaining money except taxes and loans to be repaid from taxes."—Somerset (Pa.) *Daily American*.

Dr. William A. Thomas Joins Electric Products Company

Electric Products Co., manufacturer of special motors and generators since 1909, announces that Dr. William A. Thomas has joined its engineering staff. Dr. Thomas has had a broad technical experience gained not only from his

DR. W. A. THOMAS

teaching activities, but also from many years in design engineering and as a consultant for several companies.

Graduating from the Case Institute of Technology, Cleveland, he joined the engineering department of General Electric at Schenectady. Leaving there in 1930, he spent the next 10 years teaching and gaining his master's and doctor's degrees in engineering. During this period, he was an instructor in electrical engineering at Yale and professor of electrical engineering at Antioch College and Iowa State College.

From 1940 to 1948, he was an electrical engineer with the E. I. du Pont de Nemours, Inc. at Wilmington, Del. In 1948, Dr. Thomas returned to Case as professor of electrical engineering. From this post, he came to The Electric Products Co.

V V

Nicoll Named Board Chairman Of Graybar Electric

A. H. Nicoll, president of Graybar Electric Co., New York, N. Y., recently was elected chairman of the board of directors, and F. E. Gibson, treasurer, and L. G. Fields, Richmond district manager, were elected directors of the employe-owned company.

Nicoll, who joined Graybar as a sales record clerk in San Francisco, retains the position of president, to which he was elected in 1942. Gibson has been treasurer since last October. Before that he served for several years as district credit manager at Chicago. He joined Graybar at Seattle in May, 1920, as a service and claims clerk. Fields has been district manager at Richmond since November, 1948. He joined the company as a warehouseman at Atlanta in January, 1924.

At the same time the company announced that S. M. Lawrason was appointed manager of the Baton Rouge, La., branch. Lawrason formerly was sales manager of the branch which was opened early this year.

Lawrason joined Graybar at New Orleans as a salesman in October, 1941. He was transferred to Baton Rouge as sales manager in January of this year. He is a graduate of the school of engineering of Louisiana State University.

V V

Mexican Company to Convert Four Exchanges to Dial

Federal Telephone & Radio Corp., Clifton, N. J., has received an order from Telefonos de Mexico, S. A., calling for the installation of 18,000 lines of 7A-2 Rotary automatic telephone switching equipment in the city of Monterrey. The project, part of an extensive program to convert the telephone system of that city from manual to dial service, will cost approximately 3 million dollars.

The equipment will be installed at four Monterrey exchanges: 15,000 lines at Mayo; 2,200 lines at Las Mitras; 200 at Anahuac; and 600 at Valle, replacing 13,000 lines of existing manual apparatus and adding 5,000 new lines.

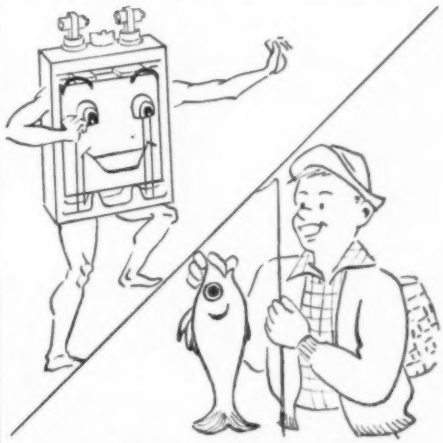
ADGER S. JOHNSON recently was appointed president of National Carbon Co., a division of Union Carbide & Carbon Corp. He has been vice president and general manager of National Carbon Co. since May, 1950.

TAKE A LOAD OFF
YOUR BATTERIES

AND OFF YOUR MIND
INSTALL A FLOTROL

Model 75A

THEY'LL ENJOY THE REST



AND SO WILL YOU

FLOTROL has no moving parts, requires no routine maintenance or adjustment; it supplies the load current as you need it, doesn't wait for the load to pull the battery down and then recharge the battery. Result—longer battery life, less power consumption, fully charged batteries all the time, and scores of maintenance man-hours saved yearly.

Single-phase models from 1/2 ampere to 24 amperes, described in Bulletin 160.

Three-phase models from 25 amperes to 200 amperes, described in Bulletin 161.

LORAIN PRODUCTS CORPORATION
1122 F STREET LORAIN, OHIO

FLOTROL SUB-CYCLE

CLASSIFIED SECTION

Rates 15 cents per word payable in advance. Minimum charge $3.00 for 20 words or less.

FOR SALE

IMMEDIATE DELIVERY

DOUGLAS FIR PONY CROSSARMS

62 inch 6 pin per 100 ..... $175.00
82 inch 8 pin per 100 ..... $205.00
102 inch 10 pin per 100 ..... $261.00

LOCUST PINS

1¼ inch x 8 inch per 100 ..... $6.97
1½ inch x 9 inch per 100 ..... $8.27

AMERTEL 12-85 H.T.L. GALVANIZED LINE WIRE

Less than 1500 lbs. ..... $13.95 Cwt.
1500 to 3999 lbs. ..... $13.70 Cwt.
4000 to 9999 lbs. ..... $13.50 Cwt.

W-110B TELEPHONE FIELD WIRE

2 Conductor (3 copper—4 steel strands) Rubber Insulated, Weatherproof Jacketed. Full Mile Reel $13.00

DROP WIRE, WEATHERPROOF JACKETED, TWISTED PAIR

2 Conductor, 17 gauge, 1000 foot coils. Special per 1000 feet $23.00

BURIAL WIRE, BUNA-S JACKET PARALLEL

Solid Tinned Copper, 17 gauge, 2 conductor 2500 ft. Reels, per 1000 feet .. $12.75

fob Chicago, Illinois

TELEPHONE REPAIR AND SUPPLY CO.

1760 Lunt Ave. Chicago 26, Ill.

FOR SALE

130-STATION MAGNETO EXCHANGE county seat town southwest Missouri, tourist and farming territory. Must sell at once. Inquire in person and make offer. Mrs. L. A. Neal, Galena, Mo. Telephone 100.

Serving the West

POLE LINE MATERIAL & SPECIALTIES

JACK PRUZAN CO.

109 Jackson St. Seattle 4, Wash.

Service—Dependability—Economy

The only independently owned Seattle Pole Line Hardware distributor

SWITCHBOARD PARTS

W.E. No. 22C Drops, individual (new) . $3.00

W.E. No. 2C Red Eye drops and jacks 5 per strip—used $15.00

W.E. No. 30C Shutter, ring off drops 5 per strip—used $10.00

Kellogg No. 503 Shutter drops and jacks 10 per strip—used $30.00

Leich Elec. restoring drops— 10 per strip $20.00

Leich jacks for above drops— 20 per strip $5.00

W.E. No. 1268A and 1269A main frame protectors with heat coils and carbons, reconditioned $17.50

W.E. terminal block binding posts No. 93, No. 65, No. 36, No. 35 ..... $3.75

BOHNSACK EQUIPMENT COMPANY

GERMANTOWN, NEW YORK

FOR SALE

1100 feet 100-pair lead cable. Brand new. First $750.00 gets it. Please do not inquire unless you mean business. Write: Post Office Box No. 18, Elysian Fields, Tex., or Telephone 90.

Cedar Poles

THE MAC GILLIS & GIBBS CO.

1615 E. Royall Place, Milwaukee 2, Wis.

Northern White and Western Red Cedar
Creosote and Pentachlorophenol Treatments

ATLANTIC

Creosoting Co., Inc., 17 Battery Pl., N. Y. C.

Creosoted Pine Poles
Crossarms . . Conduit

PLANTS AND OFFICES

New Orleans, La. Jackson, Tenn. Boston, Mass.
Winnfield, La. Louisville, Miss. New York, N. Y.
Norfolk, Va. Savannah, Ga. Philadelphia, Pa.
Annapolis, Md. Chicago, Ill.

POLES

CREOSOTED SOUTHERN YELLOW PINE
LOW *RESIDUE* COAL TAR DISTILLATE
"Truck Delivery Our Specialty"

THE BAKER WOOD PRESERVING COMPANY

P.O. BOX 355 MARION, OHIO

POLES

B. J. Carney & Co., 100 N. 7th St., Minneapolis, Minn.—Western red cedar poles. Pentrex Butt Treated or Plain.

Cascade Pole Co., P.O. Box 743, Tacoma, Wash. — Creosoted Douglas Fir and Cedar Poles.

C. M. Christiansen Co., Phelps, Wis.—Northern White Cedar Poles, plain or butt treated.

Dierks Lumber & Coal Company, Creosoting Division, 700 Dierks Bldg., Kansas City, Mo. — Pressure creosoted yellow pine poles at our modern plant at Process City, Ark., near DeQueen.

Eppinger & Russell Co., 80—8th Avenue, New York 11, N. Y.—Creosoted Poles and Cross Arms. Plants: Jacksonville, Fla., Norfolk, Va., Eddington, Pa.

International Creosoting and Construction Co., Galveston, Texas.—Creosoted Southern Yellow Pine Poles. Plants Beaumont and Texarkana, Texas.

Montana Pole & Treating Plant, Butte, Montana — Fir Lodgepole Pine Poles. Butt-treated or Full-length treated with Creosote or Penta.

T. M. Partridge Lumber Co., Minneapolis, Minn.—Northern White—Western Red Cedar Poles. Plain or butt-treated.

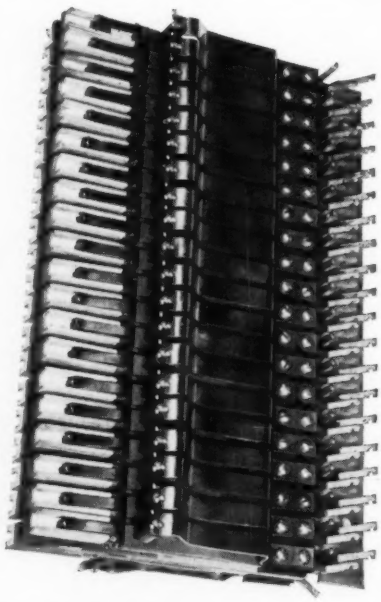
RECONDITIONED

WESTERN ELECTRIC CENTRAL OFFICE PROTECTION

#1269-A (20 pairs per strip)
#1268-A (20 pairs per strip)
#1268-B (23 pairs per strip)

Complete with #26 & #27 protector blocks, and #76-A Heat Coils.

Prompt Shipment



BUCKEYE TELEPHONE & SUPPLY CO.

1250 Kinnear Road Columbus 8, Ohio

"OFF-JOB TRAINING"

by HARRY C. WALKER, Ph.D.

Training Today Means Production Tomorrow

With a quarter century of practice and experience in job training. Dr. Walker treats the teacher and learner fully.

Written in straightforward English, there is an abundance of practical suggestions for lesson planning, classroom procedures, training aids, and many worthwhile topics.

Price $1.75 each including delivery.

•

A New book for your job instructors.

Management, as well as each Department Head, Supervisor, Foreman, or Trainee realizes today the importance of proper and efficient job training.

•

ORDER FROM

TELEPHONY PUBLISHING CORPORATION

608 SOUTH DEARBORN STREET

CHICAGO 5, ILLINOIS

HELP WANTED

CLASS A TELEPHONE COMPANY operating approximately 18,000 stations located in the Middle West desires the services of an experienced man for the position of assistant to its general manager. A general knowledge of the telephone business and executive ability are among the qualifications required. This is an opportunity for a man with exceptional ability. Salary open. Write Box No. 3137, c/o TELEPHONY.

POSITIONS OPEN FOR MEN WITH PRACTICAL TELEPHONE EXPERIENCE under classification of Lineman, Combinationman and Construction Crew Foreman. Steady employment with good working conditions, and salary commensurate with experience. When applying give age and qualifications. Write Nebraska Continental Telephone Co., Columbus, Neb.

WANTED AT ONCE — STATION INSTALLERS AND LINEMEN. Must be experienced. Best of working conditions. Write or telephone Wilton Electric & Telephone Cont. Co., Wilton Junction, Iowa. Telephone 21.

EXPERIENCED COMBINATION MAN—good habits and industrious, for a company of 850 stations, group insurance, paid vacations and holidays. Write Box No. 3133, c/o TELEPHONY.

HELP WANTED

DIAL AND COMBINATION PLANT MAINTENANCE MAN for Alaskan Exchange. State age, experience and wages now received. Reply to Box No. 3140, c/o TELEPHONY.

EXPERIENCED STATION INSTALLERS, LINEMEN AND CABLE SPLICERS. Write NEALE CONSTRUCTION CO., TOPEKA, KANSAS.

LINEMEN AND APPRENTICES. Good pay. Permanent. Good future with new organization. Write for application blank and full details to Box 247, Station F, Buffalo 12, N. Y.

POSITION WANTED

SALESMAN would like to be factory agent for good lines sold to Telephone, Telegraph, Power and Railroad companies. Will cover Midwestern states. Write Box No. 3138, c/o TELEPHONY.

CENTRAL OFFICE EQUIPMENT TECHNICIAN, common battery or automatic exchange, capable of supervisory position. Best of references. Write Box No. 3136, c/o TELEPHONY.

P.B.X. and EUROPEAN P.A.X. SWITCHBOARD INSTALLER, repairman and adjuster; also all other phases telephony except cable splicing; 23 years' experience Independent telephone company. Write Box No. 3135, c/o TELEPHONY.

CONSTRUCTION FOREMAN OR MAINTENANCE MAN: 48 years of age and first class; 25 years' telephone inside and out. What have you? Write Box No. 3139, c/o TELEPHONY.

WANTED TO BUY

WESTERN ELECTRIC MAGNETO SWITCHBOARDS with the shutter door No. 22 C combined drops and jacks. No shipping problems. Ship jacks and keys only. Call or write Bohnsack Equipment Co., Germantown, N. Y. Telephone 100-W.

A 64 year old, reliable, medium sized manufacturing company, over 50 years in the telephone field, wants to acquire devices or companies to broaden its present line.

Write:

BOX No. 3129, c/o TELEPHONY

Old, established, nationally known company interested in the purchase of Patents, New Products or Companies that have an application in the telephone field.

CONTACT

BOX NO. 3013, c/o TELEPHONY

SERVICES AVAILABLE

INSPECTION SERVICE

Of poles, crossarms, and preservative treatments. Analyses of wood preservatives. Inspectors stationed throughout U.S.A.

A. W. WILLIAMS INSPECTION CO.

MOBILE, ALA.

Installation Specialists

CENTRAL OFFICES

INSTALLED—MODIFIED—ENLARGED

COMMUNI-CATERING

P.O. BOX 6712 CHICAGO 7, ILL.

Cable Splicing—Repairing—Cable Plant Construction—Aerial Spinning and Underground Trenching—Line Construction—Switchboard Repairing . . . ALL WORK GUARANTEED

WILTON ELECTRIC & TELEPHONE CONSTRUCTION CO.

ANDY MUELLER

Wilton Jct., Iowa Telephone 21

TELEPHONE PRINTING

By People Who Know the Telephone Business

SEE THE SUTTLE CATALOG

SUTTLE EQUIPMENT CO.

LAWRENCEVILLE ILLINOIS

SPECIALISTS Our 46th Year

TELEPHONE FORMS

PRINTING • PLANOGRAPHING

YOUR ORDERS RECEIVE PROMPT ATTENTION

CULLOM & GHERTNER CO.

600 21st AVE., N. NASHVILLE 4, TENN.

CYRUS G. HILL

ENGINEERS

PLANT — TRAFFIC — COMMERCIAL

VALUATIONS AND ORIGINAL COST

231 S. LA SALLE ST., CHICAGO 4

SLOAN, COOK & LOWE

CONSULTING ENGINEERS

120 SOUTH LA SALLE STREET

CHICAGO

Appraisals—Original Cost Studies Depreciation, Financial, and Other Investigations

Need help? Need a job? Something to sell? Something to buy? For best results and quick results use

TELEPHONY's

Classified Advertising Section

How to Build Better Rural Lines at Lower Cost per Mile

Write for Your Copy of This Free Book!

You can save material and man-hours, and build better rural lines, when you use *Crapo* High-Tensile Telephone Line Wire.

Long - span, lower - cost rural construction is described in the illustrated Manual shown above. Designed to assist telephone men in furthering their plans to extend and improve rural service, this book includes stringing sag and tension data, helpful information on construction practices, metalicizing, transposition, pole guying, and related subjects.

This FREE book is yours for the asking. Write for Manual No. 203 today!

Crapo HIGH-TENSILE LOW-RESISTANCE LINE WIRE

Crapo HTL 85

Crapo HTL 135

Distributed by Leading Jobbers

INDIANA STEEL & WIRE COMPANY
Muncie, Indiana

Index to ADVERTISERS

	Page
Acorn Insulated Wire Co., The	—
Alphaduct Wire and Cable Co.	40
American Appraisal Co., The	—
American Creosote Works, Inc.	—
American Cross-Arm, Inc.	—
American Steel & Wire Co.	—
American Structural Products Co.	34
American Telephone & Telegraph Co.	—
Ansonia Electrical Co., The	35
Armstrong Cork Co., Glass Insulators	—
Atlantic Creosoting Co., Inc.	48
Automatic Electric (Canada) Ltd.	21
Automatic Electric Sales Corp.	26-27, 51
Baker Wood Preserving Co., The	48
Barrett Division, The Allied Chemical & Dye Corp.	—
Bartlett Mfg. Co.	—
Bell Telephone Laboratories	33
Berry & Co., L. M.	—
Bethlehem Steel Co.	—
Brach Mfg. Corp.	—
British Insulated Callender's Cables Ltd.	31
Buckeye Telephone & Supply Co.	43, 48
Buckingham Mfg. Co., Inc.	—
Burgess-Manning Co.	—
Burroughs Adding Machine Co.	—
C & D Batteries, Inc.	12
Cable Spinning Equipment Co.	—
Calculagraph Company	—
Carney & Co., B. J.	48
Cascade Pole Co.	48
Chance Co., A. B.	—
Chase Brass & Copper Co.	39
Christiansen Co., C. M.	48
Coffing Hoist Co.	—
Colfax Lumber & Creosoting Co.	—
Commerce Service Corp.	—
Commercial Cord & Supply Co., Inc.	36
Communi-Catering	49
Communication Equipment & Eng. Co.	—
Continental Cross-Arm Co., Inc.	—
Cook Electric Co.	6, 35
Copperweld Steel Co.	—
C-O-Two Fire Equipment Co.	—
Cullom & Ghertner Co.	49
Dierks Lumber & Coal Co.	48
Dillon & Co., W. C.	—
Donnelley & Sons, R. R.	—
Dow Chemical Co., The	19
Eagle Mfg. Co.	—
Ebco Mfg. Co., The	—
Ederer, Inc.	—
Electric Storage Battery Co., The	—
Eppinger & Russell Co.	48
Ericsson Telephone Sales Corp.	—
Everstick Anchor Co.	—
Federal Telephone & Radio Corp.	38
Four Wheel Drive Auto Co.	—
General Electric Co.	—
General Insulated Wire Works, Inc.	44
General Telephone Directory Co.	—
Gould-National Batteries, Inc.	7, 35
Graybar Electric Co.	25
Greenlee Tool Co.	—
Haley & Co., R. G.	—
Hammond Drierite Co., W. A.	—
Henkels & McCoy	—
Highway Trailer Co.	—
Hill, Cyrus G.	49
Gustav Hirsch Organization, Inc.	—
Holtzer-Cabot, Inc.	—
Homelite Corp.	—
Hubbard & Co.	41
Hunter Mfg. Co.	—
Indiana Steel & Wire Co.	7, 50
International Creosoting & Construction Co.	48
International Harvester Co.	—
Johns-Manville	—
Joslyn Mfg. & Supply Co.	—
Ka-Mo Tools, Inc.	—
Kearney Corp., Jas. R.	—
Kellogg Switchboard & Supply Co.	4-7
Kennecott Wire & Cable Co.	39
Kester Solder Co.	—
Klein & Sons, Mathias	—
Koiled Kords, Inc.	—
Koppers Co., Inc.	—
Leeds & Northrup Co.	—
Leich Sales Corporation	10-11
Lenz Electric Mfg. Co.	—
Lindsay Telephone Supply Co., The	—
Line Equipment Sales	—
Line Materials Co., Div.—McGraw Electric Co.	9
Linen Thread Co., The	—
Loomis Advertising Co.	37
Lorain Products Corporation, The	7, 47
Lowell Insulated Wire, Div. of the Overlakes Corp.	—
MacGillis & Gibbs Co.	48
Mall Tool Co.	—
Matthews Corp., W. N.	—
McCabe-Powers Auto Body Co.	—
Midwest Utility Const. Co.	—
Montana Pole & Treating Plant	48
Moran, John J.	—
Moss Tie Co., T. J.	—
Motorola, Inc.	—
National Carbon Div.—Union Carbide & Carbon Corp.	7
National Fireproofing Co.	46
National Pole & Treating Div. Minnesota & Ontario Paper Co.	—
National Telephone Supply Co.	Back Cover
Neale Construction Co.	—
North Bros. Mfg. Co.	—
North Electric Mfg. Co.	23
Okonite Co., The	—
Onan & Sons, D. W.	—
Page & Hill, Inc.	—
Paragon Electric Co.	7, 46
Partridge Lumber Co., T. M.	48
Petersen Engineering Co.	—
Porcelain Products, Inc.	—
Porter, Inc., H. K.	—
Power Equipment Co.	45
Pruzan Co., Jack	48
Ray-O-Vac Co.	—
Raytheon Mfg. Co.	—
Reliable Electric Co.	6
Remington-Rand, Inc.	—
Rhodes & Sons, M. M.	—
Roebling's Sons Co., John A.	—
Runzel Cord & Wire Co.	—
Schauer Mfg. Co.	—
Securities, Inc.	—
Sherron Metallic Corp.	—
Signal Engineering & Mfg. Co.	42
Sloan, Cook & Lowe Co.	49
Seymour Smith & Son, Inc.	—
Southern Pine Lumber Co.	—
Stahl Metal Products, Inc.	—
Stromberg-Carlson Co.	2-3, 34, 35
Sturgis Posture Chair Co.	—
Suttle Equipment Co.	49
Taca Cable Stripper Mfg. Co.	—
Taylor-Colquitt Co.	—
Tel-E-Lect Products, Inc.	—
Telectric Co., The	—
Telefon Fabrik Automatic	—
Telephone Repair and Supply Co.	48
Tele-Wire Supply Co.	—
Telkor, Inc.	—
Templeton Kenly Co.	—
Texas Creosoting Co.	—
United States Motors Corp.	—
United States Steel Corp. (Coal Chemical Div.)	29
Utica Drop Forge & Tool Corp.	—
Vulcan Electric Corp.	7
Wall Mfg. Co.	—
Weller, G. Louis	—
Western Electric Co.	—
Weston Electrical Instrument Co.	—
Whitney Blake Co.	—
Williams Inspection Co., A. W.	49
Wilton Electric & Telephone Construction Co.	49
The Wiremold Co.	—

Calls for bus information get through *quickly* now! "Busy tone" is rare, for folks in the waiting room are using the new paystation instead of tying up the ticket agent's telephone. *They* like paystations, too—because "there's no need to hurry when you're *paying* to call." . . . In short, *everybody* likes paystations!

That's Why AUTELCO PAYSTATIONS PAY!

Paystations are proving profitable everywhere. They're quickly accepted by the community, and speedily pay for themselves—in bus terminals, stores, hotel lobbies, restaurants, gas stations, and all public places. Progressive companies have proved that the average paystation earns four times as much revenue as a subscriber station.

Write today for new Circular 1724, illustrating profitable 10-cent Autelco Paystations, and kits to convert paystations to the 10-cent rate.

Product of the Telephone Specialty Department of

AUTOMATIC ELECTRIC

Originators and Developers of the Strowger Step-by-Step "Director" for Register-Sender-Translator Operation . . . Machine Switching Automatic Dial Systems
Makers of Telephone, Signaling and Communication Apparatus . . Electrical Engineers, Designers and Consultants

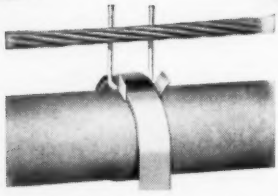
Distributors in U. S. and Possessions: Automatic Electric Sales Corporation
Export Distributors: International Automatic Electric Corporation
1033 West Van Buren Street, Chicago 7, U. S. A.

AUTHORIZED DISTRIBUTORS FOR AUTELCO PAYSTATIONS • Automatic Electric Sales Corporation • Graybar Electric Company
Kellogg Switchboard & Supply Company • Leich Sales Corporation • The North Electric Mfg. Company • Stromberg-Carlson Company

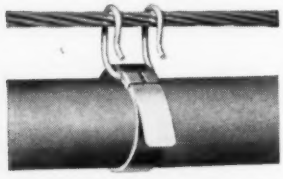
"JOB PROVEN"

By Linemen The Country Over

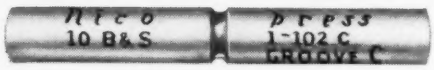
NICOPRESS Tool for Compressing Sleeves



National Adjust-A-Strap, partially installed. Notice split buckle to facilitate wrapping zinc strap around cable

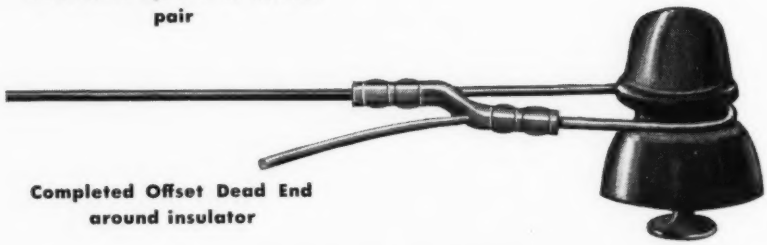


National Zinc-Wrap partially installed



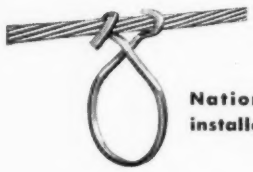
NICOPRESS line wire Splicing Sleeve

NICOPRESS splices on twisted pair

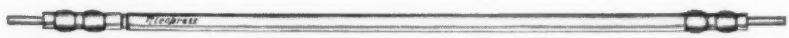


Completed Offset Dead End around insulator

NICOPRESS Reducing Sleeve splice on wires of different sizes (before compressing)



National cable ring installed on messenger



NICOPRESS Repair Sleeve used to replace defective old style joints

NICOTAP—Split feature permits easy installation on line wire.

Ask Your Jobber

The National Telephone Supply Company

5100 SUPERIOR AVENUE • CLEVELAND 3, OHIO

Canadian Mfr.—N. SLATER CO., LTD., HAMILTON, ONT., CANADA

Export Distributor—INTERNATIONAL STANDARD ELECTRIC CORP., NEW YORK, N. Y.

Nicopress is the Registered Trade Mark of The National Telephone Supply Company

THE NATIONAL TELEPHONE SUPPLY COMPANY